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Original Articles.

SURGERY OF THE PROSTATE GLAND.*

BY JOHN H. GLEASON, M. D., C. M., F. A. C. S., MANCHESTER, N. H.

In discussing the methods to be advised in treating the progressive symptoms of prostatic hypertrophy one should at the beginning point out that present-day methods are no longer fashioned after the technic as practiced by the fathers. Neither are the results as to ultimate function the same, for now the patient may be assured of good urinary control after operation.

Also, with careful preliminary study and treatment and with subsequent carefully conducted operations, the mortality has been reduced from a high rate to a very low per cent. indeed.

If I were to advance a plea, I would say that in view of the present status of operative treatment we would be lax if we do not do our part in teaching early treatment of prostatic obstruction.

For argument I would wish to dwell upon the fact that in treatment of local cancer, and of recurrent inflammations of the appendix, the

laiety have become educated to the great value of early prompt operations and many lives have thereby been saved.

So too, in the treatment of prostatism a campaign of enlightenment should be instituted in order to advance the benefits to be obtained if early surgical measures are to be adopted.

It has always seemed a great pity to me that the obvious rapid passing of so many men from forceful manhood to an early death from changes incidental to back pressure in the bladder, should not be more frequently treated surgically.

Unfortunately, even in these days, I think it may be safe to say the great mass of prostatitis are treated symptomatically.

If prompt instead of late treatment became the general rule many men might be saved from an early senility.

It is depressing indeed to see so many good men doddering around suffering from chronic uremia due to nothing more than secondary changes from an enlarged prostate. Hypertrophy of the prostate occurs in about 30% of elderly men, and is seldom found before the age of fifty.

Old age and feebleness should not be regarded as contraindications to operative treatment for, once operated on, feebleness very frequently disappears and advancing old age becomes deferred.

*Read before the Annual Meeting of the New Hampshire Medical Society, Concord, N. H., May 22, 1923.

CONDITION OF A PATIENT SUFFERING FROM PROSTATISM.

The primary symptoms are, frequency of micturition, the act gradually becoming more difficult and prolonged. The stream starts slowly and sometimes dribbles. This condition is followed by a sense of fulness, burning, pain and distress.

These symptoms gradually become more and more pronounced, and partial or absolute retention may or may not intervene.

The secondary symptoms are insomnia, loss of appetite, strength and weight.

These secondary symptoms may be caused by damming back in the ureters and pressure in the kidneys; or they may be caused by intoxication from the presence of residual urine.

Extreme secondary symptoms are most rapidly brought about by the outlet of the bladder becoming suddenly decidedly elevated and the residual urine thereby increased.

In such cases the bladder wall yields, dilatation takes place, and the residual fluid may increase from 2 or 3 ounces up to a very large quantity, some bladder retention tumors filling the entire abdominal cavity.

A patient in this condition can pass only a few drops at a time and the urine dribbles away at intervals.

Finally no urine at all can be passed and the catheter, with its accompanying danger of infection, must be depended on.

If infection is added to the above symptoms the pain, frequency, and distress are increased.

Few patients suffering from prostatism are free from one or more grave complications, such as cystitis, vesical calculus, nephritis, pyelitis, chronic bronchitis, cardiac disease, etc.

However, even in some of the most complicated cases, where atony or contraction of the bladder is more or less extreme and where there is marked secondary involvement, a successful prostatectomy will bring relief, the kidneys will be benefited, and the bladder will nearly always regain its function.

It further stands to reason that one should urge an early operation and not defer the procedure until marked secondary changes have taken place, for a prostatectomy performed before sepsis is present or before back pressure symptoms have developed, is of slight gravity compared with one performed in an emergency or as a last resort.

Conditions requiring a prostatectomy may be summed up as follows:—

1st. A constant and increasing amount of residual urine with loss of sleep, headache, lassitude, thirst and anorexia.

2nd. Extreme over-distention and dribbling.

3rd. Retention from time to time.

4th. Ability to void some urine, although the

patient is obliged to employ a catheter to obtain rest and comfort.

5th. Entire dependence on the catheter.

6th. Complete retention.

7th. Malignant tumors, which if removed early, some cures are to be expected, when followed by the use of radium.

ANTE-OPERATIVE TREATMENT.

The preliminary treatment is of most importance. It should begin as soon as a careful examination has been made.

All patients should be regarded as poor risks and should be very carefully studied and prepared.

The cystoscope should be used when feasible to determine possible tumors and the exact condition of the bladder wall.

Even the so-called mild cases, with large tissue hypertrophy with no back pressure symptoms and a clear residual urine should never be hurried to the operating table.

These cases should enter the hospital, be placed on a bland, light diet, given water copiously, and the bladder should be irrigated daily.

After the first three days of such treatment the Sp. G. reads constant from 1015 to 1020 and the patient is usually in condition for an operation in from 7 to 10 days.

In my opinion all cases classified over the borderland represented by the above condition require a two-stage operation.

By this I mean that the prostatectomy for advanced cases should be divided into two parts, one of drainage and preparation and one of enucleation.

PREPARATION OF THE ADVANCED CASE.

Outside of marked cardio-renal changes to be considered in the study of advanced disease of the prostate, the most important factor to be weighed is the specific gravity of the urine. A low specific gravity indicates that the kidneys have suffered from back pressure and, therefore, that the blood serum is loaded with solids that should have been removed by the kidneys; namely, a progressive diminution of the nitrogen output.

Too much importance should not be placed upon kidney function tests in these cases with urinary back pressure.

Chute¹ states "this caution so far as I am aware, applies no more to the use of one test than to another; and should be exercised in two directions; thus, while it should not discourage us from hoping for a favorable result in a patient showing a very low functional ability, it should not lead us to relax our care in the least in a patient showing a high renal function.

The reasons are these: First, in the pressure of urinary back pressure, none of the renal tests can give us the potential power of the kidney.

Its poor output may simply be due to the embarrassment of back pressure.

A high or a very low blood pressure should not contraindicate present-day operative procedures.

One must always bear in mind that the mortality of prostatitis depends upon the condition of the kidneys more than anything else.

Much can be done by careful preparation and treatment to make the operations safe and promote a prompt recovery.

My plan, therefore, is as follows: Once the patient has been examined and found to conform to this advanced type of disease, the bladder is at once opened suprapubically under local novocaine anesthesia.

If there has been considerable back pressure with distended and relaxed bladder walls I use a small tube, comparatively, a 24 French, inserted through a trocar puncture. This method allows one to control and to gradually relieve the over-distention. Sudden and complete evacuation of the bladder in these cases should be avoided.

If, on the other hand, the bladder wall is thickened and there is present a heavy ammoniacal urine, I insert a large drainage tube, size 45 French, and promote continuous free drainage. With a permanent tube thus installed in the bladder the patient is placed in the same condition, so far as emptying the bladder is concerned, as he will be after the prostate is removed.

Nausea, loss of appetite, indigestion, dryness of the mouth, headache and pain are at once relieved, and the patient will be enabled to eat, drink, sleep and improve in condition.

He should be encouraged to take large quantities of water for several days in order to fill the circulation and to stimulate the kidneys into marked activity.

During this period the specific gravity will change from 1006 or less up to 1015 or 1020 within a few days.

The bladder may or may not be irrigated, according to whether or not it has been infected from previous catheter instrumentation.

All patients should be classified as poor risks so far as their cardio-vascular system is concerned. They should, therefore, be kept up and about and out of the bed in the interval between the two operations. This preparation between operations may take from 10 to 15 days.

CHOICE OF OPERATION.

In a study of the details of the suprapubic and perineal operations, taking into consideration the tissues involved in the dissection, and the immediate and ultimate results to be obtained, one at once concludes that there are many points of advantage as well as some disadvantages in either procedure.

It seems that one should deliberately weigh the evidence presented, and keeping in mind the element of safety, choose the operation that will promise the most favorable result in the individual case.

Reasoning in this way, one would say, therefore, that the operator should be as familiar with both the infrapubic and suprapubic methods of prostatectomy as with any other two methods of operating for one condition, and make his selection of route accordingly.

The relative value of the statistics of the results of operators practicing one method or the other exclusively should have no bearing or weight in the selection of the method of procedure.

One must take for granted that, although this operation is comparable to none other in surgery, owing to the advanced age to which it is mainly confined, yet if the cases are in the least selected, the mortality record is thereby markedly influenced.

In view of our present knowledge of the anatomy and pathology of the prostate the suprapubic method should be the operation to select unless there are strong contraindications.

This operation has the marked advantage of providing absolute control from the time the urine is first voided through the urethra.

Sexual function is very frequently restored.

The wound is less exposed to infection, hemorrhage is well under control and there is no danger of a permanent urinary fistula.

The restoration of the bladder muscle to its full vigor is one of the most striking results of this type of prostatectomy.

It enables one also to thoroughly explore the bladder.

The operation is not likely to be attended with painful complications such as inflammation in the epididymis or testicle or wounding of the rectum.

The perineal operation should be reserved for cases presenting hard fibrous prostates, and malignant growths and for cases presenting abscesses in the scrotum and the perineal region, due to infection in the process of instrumentation and treatment.

THE SUPRAPUBIC OPERATION.

One must take for granted that opening the bladder for drainage in most cases is simply a step in the preliminary or preparatory treatment of the patient.

This should always be done under local anesthesia. The amount of time which should be allowed to elapse between the cystotomy for drainage and the prostatectomy itself requires very nice decision and careful judgment on the part of the operator.

One should be sure to wait long enough, to wait until the tongue is clear, until headaches

have disappeared and until solids are normally excreted through the urine.

In planning for the operation one should first consider what form of anesthesia is best to use. One cannot say that any anesthetic as applied to old cases of prostatism is without some drawback.

Spinal anesthesia, sacral anesthesia, gas oxygen ether, and ether, all have their advocates and supporters in the treatment of this class of cases.

I feel that the element of spinal toxicity as possibly resulting from spinal anesthesia or the labored respiration and more or less cyanosis accompanying gas oxygen ether inhalation should be safeguarded against.

Certainly very labored respiration and cyanosis must be bad for a patient whose heart is none too good and whose blood vessels are atheromatous, and prostates nearly all show these changes.

My plan of procedure has been recently to first give divided doses of scopolamine and morphia. Scopolamine gr. 1/200 and morphia gr. 1/4 are given hypodermically 2 1/2 hours and 1/2 hour before the time set for the operation.

At the time of operation the abdominal wall is infiltrated with sol. novocaine 1/2 of 1 per cent. combined with adrenalin 1-2000.

After the incision is made, the anterior bladder wall is, in turn, infiltrated and the bladder is then opened and explored.

Ether anesthesia by the drop method is then started, and as soon as relaxation has been obtained the prostate is enucleated. After the gland is free the ether is at once withdrawn, hemorrhage is controlled and the operation is completed under the effect of the local anesthetic previously given. As one becomes more and more familiar with this method of combined analgesic anesthesia one feels that nearly all disagreeable features are safeguarded against, and that the important factor of safety at every step has been most carefully considered. The amount of ether given is very small and surely is not sufficient to definitely irritate the kidneys. Much depends during the after-treatment of a case of suprapubic prostatectomy upon free drainage being maintained. The drainage tubes should be about 3/4 of an inch in diameter. This size of tubing enables one to irrigate the bladder through it with a glass tube or small rubber catheter attached to an irrigator.

At the same time there is space enough for the fluid to return freely through the drainage tube, thereby removing clots or other material without back pressure.

Irrigation in this manner should be carried out once daily.

The drainage tube is usually removed on the fourth to the sixth day.

Irrigation is then continued through the sinus as long as it is open.

The patient should sit up at once and get out of bed on the second day.

The urine begins to come away through the urethra in 10 or 12 days.

The average time of closure of the suprapubic wound is 16 days.

I do not use an in-lying catheter and I have never had any undesirable urethral complications following its non-use.

There are no half measures about this operation.

The patient always regains the power of voluntary micturition without the aid of a catheter.

There are no instances in my experience of relapse of symptoms. Time only seems to consolidate the cure, for after a lapse of months, patients state they feel ten or more years younger than before the operation.

CONCLUSIONS.

The methods I have outlined and the deductions I have drawn are based upon my present-day conception of this problem, founded on an experience in the operative management of 294 cases within 20 years. Over two-thirds of these cases were operated upon within the last ten years, and nearly all the recent cases have been done suprapubically. There has been a mortality of four cases, less than 1.4 per cent.

There has been no selection of cases to form this series, all risks having been accepted as operable, but all these men have been subjected to very careful preoperative treatment and preparation.

The point I wish to make clear and accentuate is that all prostates, however advanced, may be operated on, and practically all may recover if three rules of treatment are observed.

First. Preliminary drainage under local anesthesia with maintenance of drainage until toxemia is eliminated.

Second. Prostatectomy to follow, with a very carefully selected anesthesia.

Third. Patients must not remain in bed following operation, but must be gotten up and about at once.

Finally, I would again urge that the early treatment of a patient suffering from prostatism is most essential.

The catheter should never be used habitually. The ideal time for operation is before back pressure and infection have occurred, and should be performed as soon as the presence of sufficient residual urine indicates the progression of the disease.

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1 Chute: BOSTON MED. AND SURG. JOUR., Feb. 1, 1917.

NOTES ON BASAL METABOLISM. I. MODIFIED CLINICAL METHOD OF DETERMINATION.

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THE wide variation in the opinion of clinicians of the value of the determination of basal metabolic rate, as well as the wide variation in the results of these determinations, are due in great part to the important variations in the technic of various clinical calorimetrists. Unless prompt action be taken toward standardization of the technic of basal metabolic rate determinations, the subject will very soon fall into still further disrepute. So many different technics are used for the clinical determination of basal metabolic rate, that it seemed profitable to review and investigate them, attempting to eliminate the points of each that may lead to inaccurate results, and to retain the points of accuracy. Probably the most important influence in the trend toward inaccurate results is that of the respiration apparatus manufacturer who issues with his instrument printed directions for a short, simplified, inaccurate technic and calculation.

The open circuit methods employing the Tissot gasometer or the Douglas bag are used on a large scale in but few clinics compared to the number using the closed circuit methods, popularized clinically by Benedict. The clinics using the open circuit methods are, as a rule, of the larger, more adequately equipped and better supervised type; hence these methods are less liable to abuse and gross inaccuracies than are the closed circuit methods. This note deals only with the closed circuit methods.

No really essential variations exist in the different models of respiration apparatus. The important variations have been in the successive technics recommended.

In his original description of the apparatus Benedict¹ recommended reading statically the scale showing the oxygen volumes. The three-way valve connecting the subject's lungs with the closed circuit of the apparatus was turned, at the end of an expiration, at the beginning and at the end of the test, which was of from 10 to 12 minutes' duration. Two readings were made; one before connecting the subject's lung space with the apparatus, by turning the three-way valve, and one after disconnecting. The difference between the two readings was the oxygen consumption for the test period. A stop watch was used to measure the period between the two turns of the valve. The original article¹ (p. 672) states that "as soon as the respiration

appears normal, the 3-way valve is quickly turned 90 degrees to connect the subject with the air current. This should be done at the end of a normal (not forced) expiration. At the moment of turning the valve, the exact time is noted, preferably with a stop watch. Practically no further attention need be given to the subject or apparatus until the end of the experiment . . . (p. 673). At the end of ten or twelve minutes, the excursions of the bell are carefully watched, and at the conclusion of a normal expiration the 3-way valve is again turned, disconnecting the subject from the ventilating air current; the time is then noted."

Emmes modified this method of reading the oxygen volumes, reading the scale while the indicator was in motion. He took a reading at the end of an expiration which varied but little from the one before and the one after it, recorded it and started a stop watch at the time the reading was indicated. Ten to twelve minutes later another reading was similarly taken. Benedict¹ (p. 673) describes this method as follows: Emmes "has had excellent success in determining the oxygen consumption by using a modification of the method outlined in that he reads the spirometer *after* the subject has been connected with the air current. Noting the height to which the spirometer is raised at the end of a series of regular normal expirations, he starts a stop watch. The experimental period then continues about 12 minutes, when again the height of the spirometer at the end of a series of three or four normal expirations is noted and recorded, and simultaneously the watch is stopped."

Emmes further modified this method of volume reading by taking three readings, in the method described, a few moments apart at the start of the test, starting three stop watches, one at the time of each of the three readings. At the end of the test three more readings a few moments apart were similarly taken and the stop watches stopped at the time of the three readings and in the order started. This method is described by Benedict¹ (p. 673).

This stop watch method has been modified by Benedict and Collins² (p. 454) by using an ordinary watch with second hand: "After the subject is connected with the respiration apparatus, the nose-clips applied, and the respiration has become regular, *i.e.*, within a few seconds, the operator notes the position of the pointer on the counterpoise at the end of three or four successive exhalations. Due to the continual absorption of oxygen the bell should fall slightly during each respiration, and consequently the counterpoise pointer steadily, though slightly, rises each time. The operator then immediately writes a final reading, for example, 378 mm., on a pad or tablet and, *after he has written this*, he instantly notes the position of the second hand, for example, 23 seconds, and records it. *Immediately* afterwards he care-

fully notes the positions of the minute and hour hands. While the reading of the scale of 378 mm. may not occur at, for example, the recorded 8 hours, 58 minutes, 23 seconds, but, more strictly speaking, did occur more nearly at 8 hours, 58 minutes, 13 seconds, owing to the latency of the time required to write down the figures 378 mm. . . . nevertheless, we have found that the latency is practically the same for all records, and since the periods are always from nine to fourteen minutes long and essentially the same degree of latency is noted at the beginning and end of each set of readings, no error is thereby introduced. This method has other distinct advantages in that one can in the final computations note the drop in the spirometer bell between the first and the last reading at the end of the test, or can make any arbitrary combination of readings to give the longest period of experimenting, and the two inside readings to give the shortest, and note if there is any material difference between short and long experiments."

The first readings of volume and time taken by this method may be designated A readings. A few moments later the volume and time are again recorded, B readings; and after a few moments similar C readings are recorded. About ten minutes later A', B' and C' readings are similarly recorded. The difference between time and volume readings A and A', A and B', A and C', B and A', B and B', B and C', C and A', C and B', and C and C' are nine oxygen consumptions and nine corresponding time measurements.

Some observers routinely use the average of the three differences A to A', B to B' and C to C'; others, more laboriously, average the whole nine periods; still others, less legitimately, reject very high and very low results and average the remaining ones; while others again routinely calculate the basal metabolic rate from the lowest of the nine periods, more often the C to A', or "inside" period.

The directions issued with the Sanborn respiration apparatus recommend reading the oxygen scale at the end of three normal expirations at the beginning and again at the end of an approximately ten-minute test, taking the time between the middle one of each three readings. These directions state that "readings of the oxygen scale at intervals of two, three, or five minutes are of decided benefit." Apparently, no use is made of the shorter periods in the calculation, as either the full nine to ten-minute period or the average of three three-minute periods, which is obviously identical, is used. What advantage can be gained by reading three-minute oxygen consumptions and averaging them is not apparent. Much puerile and unsound arithmetic has been thrust into this subject.

Lahey and Jordan,³ similarly, recorded two-minute readings but used the full ten-minute re-

sult in the calculation of the oxygen consumption.

All the methods so far described are essentially more or less accurate readings of approximately a ten-minute oxygen consumption. Earle and Goodall⁴ and Roth,⁵ independently, revived the kymograph method of continuous recording of the oxygen volume referred to by Benedict⁶ in his original description of the universal respiration apparatus, and used by Hendry, Carpenter and Emmes.⁷ This method gives the oxygen volume at any moment by reference to the time line of the tracing. Roth recommends, for simplicity of calculating the sixty-minute oxygen consumption, selecting a six-minute volume decrease from that part of the tracing which is most regular.

Early in 1921, results similar to those of Earle and Goodall and of Roth were obtained in these hospitals by taking continuous readings of the oxygen volumes at the end of every expiration throughout the test, indicating the time periods in half minutes. By a study of results of determinations by this technic it was found that almost invariably, in spite of sufficient preliminary breathing, the oxygen consumption was higher at the beginning and at the end of a ten-minute period than between the fourth and eighth minutes. It is probable that excitement of the patient accounts for the increase in oxygen consumption at the beginning of the test, and that the increase at the end is due to discomfort and anxiety of the patient. The study of a number of determinations by this continuous method of reading and by the method of ten readings every two minutes, described in the next paragraph, indicated that no advantage in accuracy was to be gained by the laborious continuous method of reading.

It, therefore, has been the custom in these hospitals for the past three years to take the averages of ten readings at the end of expiration every two minutes throughout the test. At first, these ten readings were taken starting on the zero second of the minute. This introduced a slight error due to the variation in length of time required for ten respiratory cycles. This error is now halved, making it negligible, by centering the ten readings on the minute; that is, taking five of the ten readings before, and the remaining five after the minute. The details of the technic of recording these readings is given in the second note of this series.

This method gives, in ten minutes, five consecutive two-minute oxygen consumptions, three overlapping six-minute periods and four overlapping four-minute periods. Considerable variation in these periods is usual. The basal heat production was at first calculated from the lowest two-minute oxygen consumption. This was soon found to be erroneous, as in several cases patients suppressed the respiration for about a minute, breathing but two or three times in a two-minute period. This obviously gave an

oxygen consumption much below the basal rate that could be maintained for twenty-four hours, or even for one hour. In all such cases, however, the two minutes following the abnormally low period was used by the patient for compensation in blowing off from the system the accumulated carbon dioxide by much more rapid breathing. Later in the development of this technic and but for a short time, the lowest of the three six-minute overlapping periods was selected as the basal oxygen consumption. This was found to be but little lower than the full ten-minute period. Consequently, the lowest of the four overlapping four-minute periods has been selected as probably a more truly basal oxygen consumption than any other period, either shorter or longer.

A statistical study was made of three hundred and fifty determinations by this method. The average oxygen consumption based on the full ten-minute period was 12.6 per cent. above that based on the minimal four-minute period. That is, if the determinations had been calculated in the usual way of basing the basal metabolic rate upon the ten-minute oxygen consumption, the results would have averaged 12.6 per cent. above the results reported, which were based on the minimal four-minute period.

One test of accuracy of the method of any determination or observation is the possibility of duplication of results. It is not surprising that slightly closer agreement between the results of duplicate tests is given when the full ten-minute period is used in the calculation than when the basal four-minute period is used. In the same way a fifteen-minute period gives closer checks than a ten-minute period, and a twenty-minute than a fifteen-minute period. Still one would certainly never choose these longer periods as basal, merely because duplicate determinations check with less error than in shorter periods. One must choose between the longer periods, giving closer checks for duplicate determinations, and higher oxygen consumptions, and shorter periods, giving slightly less close checks but probably more nearly basal. It is routine in these laboratories to base the oxygen consumption on the basal four-minute period selected from five consecutive two-minute periods. The test is repeated, with ten-minute intervals, until a pair of determinations is obtained differing in their results by less than five per cent. The lower of these two results is reported as the basal metabolic rate. Usually, the result of the first test is eight per cent. to fifteen per cent. higher than the second, and the third is usually one per cent. to five per cent. below the second. Of course, the usual practice, of repeating the tests on subsequent days, is followed.

Summary.—The various technics of determination of basal metabolic rate from oxygen consumption are reviewed. The ten-minute period is too long to be basal. A technic is described

which gives a minimal four-minute volume which was 12.6 per cent. below the ten-minute volume in three hundred and fifty cases.

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NOTES ON BASAL METABOLISM. II. A SIMPLIFIED DATA CARD FOR CLINICAL DETERMINATION.

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NUMEROUS blanks—sheets and cards—for recording the data of basal metabolism determinations, have been designed. A few of these have been reported. These data blanks vary from elaborate and complete logarithmic sheets to the very simple and questionably accurate percentile correction sheets furnished by the various manufacturers of respiration apparatus. Objection has been made to calculations requiring the use of logarithms and slide rules. The unintelligent use of the various tables, formulas, and nomographic charts that have appeared in the literature is to be discouraged. Serious errors have resulted from misinterpretation and misuse of such data. Again, many errors have been caused by careless recording of data on odd scraps of paper.

The data blank shown here has been used in these hospitals for three years with satisfaction. It has been suggested that the simplicity and convenience of this blank warrant its publication. All figures and data essential to the determination are provided for. No side calculations are necessary, unless the operator cannot use a slide rule, in which case the value of the final formula needs to be calculated by multiplication and division in the usual arithmetic way or by logarithms. The final formula of the blank, however, is intended to be calculated by the slide rule.

The blank is printed on the two sides of a card 4 x 6 inches, so that ordinary stock cabinets may

be used for filing. Provision is made for calculation of the basal metabolic rate from the standards of Harris and Benedict,¹ Dreyer,² and Aub and DuBois.³ In this way a statistical study of the comparison of the results is readily made. In these hospitals all three methods are calculated and the Harris and Benedict reported clinically. The reasons for this choice of standard will be discussed in a later note of this series. In the description, suggestions, and instruc-

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BASAL METABOLIC RATE

Name (1)	Ward (2)	Date (3)	No.
Sex (4)	Weight (6) lbs. x .454= (7)	Kg.	W. factor (10)
Age (5)	Height (8) ins. x 2.54= (9)	cm.	S. & A. factor (11)

DIAGNOSIS (25)	(12)=H
	(13)=D
	(14)=A
	(15)=S

NOTES (26)	Minimal four minute volume (16)=v
------------	-----------------------------------

Average temperature °C. (17) +273=(18)=

Barometer in mm. (19) -(20)=(21)=p

B. M. R. (Harris and Benedict) = $\frac{62.4 \text{ pv}}{tH} - 100 = (22) = \text{H. \& B.}$

B. M. R. (Dreyer) = $\frac{62.4 \text{ pv}}{tD} - 100 = (23) = \text{D.}$

B. M. R. (Aub and DuBois) = $\frac{2.6 \text{ pv}}{tSA} - 100 = (24) = \text{A. \& D.}$

Time	(27)	(28)	(29)	(30)	(31)	(32)	(33)	(34)	(35)
	(36)								
	(37)								
	(38)								
	(39)								
	(40)								
	(41)								
	(42)								
	(43)								
	(44)								
	(45)								
Min.	0	2	4	6	8	10	12	14	16
	(46)								
	(47)								
	(48)								
	(49)								
	(50)								
Av.	(51)	(52)	(53)	(54)	(55)	(56)	(57)	(58)	(59)
Diff.	(60)	(61)	(62)	(63)	(64)	(65)	(66)	(67)	(68)
Pulse	(69)	(70)							
Resp.	(71)	(72)							
Temp	(73)	(74)							

FIG. 1.—Front and back of simplified data blank for clinical determination of basal metabolic rate, based on oxygen consumption. Parenthetic numbers refer to paragraph numbers in descriptive matter.

tions for use of the blank which follow, an attempt is made to cover all points in sufficient detail to be of use to one beginning this work. However, no attempt is made to indicate the errors which are possible. The subject of errors of the clinical determination of basal metabolic

rate will be discussed in a later note of this series. The parenthetic numbers on the accompanying facsimile of the blank are for purposes of description and correspond to the paragraph numbers below.

1. The name of the patient is best recorded

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BASAL METABOLIC RATE

Name **M.R.**Ward **Wom. Med. #3** Date **6 X 12 22** No. **1208**Sex **3.** Weight **121 1/2** lbs. \times **454** = **55.8** Kg.W. factor **1208**Age **22** Height **65** ins. \times **2.54** = **165** cm.S. & A. factor **202**DIAGNOSIS **Hyperthyroidism ?****1410 =H****1415 =D****37.0 =A****1.65 =S****89.0 =v**

NOTES

Minimal four minute volume

Average temperature $^{\circ}$ C. **23.5 + 273 = 296.5 =t**Barometer in mm. **765.7 - 21.5 = 744.2 =p**B. M. R. (Harris and Benedict) = $\frac{62.4 \text{ pv}}{tH} - 100 = -1 = H. \& B.$ B. M. R. (Dreyer) = $\frac{62.4 \text{ pv}}{tD} - 100 = -1 = D.$ B. M. R. (Aub and DuBois) = $\frac{2.6 \text{ pv}}{tSA} - 100 = -5 = A. \& D$

Time									
838	788	738	700	648	600				
834	776	740	702	650	604				
836	786	740	704	654	602				
840	798	736	700	650	600				
840	786	740	700	652	602				
838	786	738	696	654	600				
832	786		698	648					
832	792		696	650					
				648					
Min.	0	2	4	6	8	10	12	14	16
832	798	736	692	648	600				
830	786	734	692	642	598				
828	778	732	694	642	596				
828	776	732	690	644	588				
822	772	732	686	644	596				
Av.	831.6	785.8	736.0	694.4	647.0	598.6			
Dif.		458	449	416	474	484			
Pulse	78	80	80	80	78	80			
Resp.	18	16	15	16	18	20			
Temp	22.5	23	23	23	24	24			

FIG. 2.—Front and back of simplified blank showing data of an actual determination.

in the way it is easiest found—last name first, followed by a comma, then first name in full, and finally middle initial. Much time is saved in searching hospital records for old case histories when this method is used consistently.

2. Varies with the hospital or clinic. In private practice this space may be used for the patient's address; in research on normals it may be used to designate the group, etc.

3. Much annoyance is obviated by writing the name of the month, or its abbreviation, rather than its number. For example, Feb. 3, 1923, rather than the American abbreviation 2/3/23. European students in these laboratories, attempting to use this latter method, have read this as "second of March, 1923," on account of the European custom of recording dates in the order day, month, year. If the Roman number of the month is used, as in Europe, no mistake can be made, as 3/II/23, third of February, 1923.

4. Impossible as it may seem, errors have been made in recording the sex of the patient on several occasions. This will be discussed in a later note of this series.

5. The age is recorded in years to the nearest year.

6. Nude weight in pounds. Many hospitals are equipped with scales weighing only in pounds. If the subject is weighed in kilograms, this space is left blank.

7. The nude weight in kilograms is obtained by direct weighing, or from the weight in pounds by slide rule multiplication by 0.454, or, better, by reference to a conversion table or scale such as is found in many engineering handbooks, physical tables and laboratory manuals. A convenient conversion scale is given by Carpenter⁴ (p. 106). Sanborn⁵ (p. 271) gives a conversion table.

8. Height, without shoes or slippers, in inches. If height is taken in centimeters this space is left blank. When the subject is below the age of the applicability of the Harris and Benedict¹ standards, the height does not enter the calculation; as the standards for children, except for the Aub and DuBois³ standards, are based upon weight alone. It is, however, interesting and instructive to calculate the results for children by the adult standards as well.

9. Height in centimeters. A convenient method of direct measurement is to hang on the wall or door jamb a meter stick at one meter height from the floor. Slide rule multiplication of the height in inches by 2.54 gives height in centimeters. Conversion tables of inches to centimeters are most convenient. Sanborn⁵ (p. 270) gives such a table. A convenient conversion scale is given by Carpenter⁴ (p. 106).

10. Weight factor—the numerical value of $66.473 + 13.572w$ (males) and $655.096 + 9.563w$ (females), in which w is nude weight in kilograms. Values of the weight factor for male

and female adults are tabulated, for the usual range of weights, by Harris and Benedict¹ (pp. 253, 254, 260, 261) and by Carpenter⁴ (pp. 110, 111, 116, 117).

11. Stature and age factor—the numerical value of $5.003s - 6.755a$ (males) and $1.850s - 4.676a$ (females), in which s is stature in centimeters and a is age in years. Values of the stature and age factor for male and female adults are tabulated, for the usual ranges of statures and ages by Harris and Benedict¹ (pp. 255 to 259 and 262 to 266), and by Carpenter⁴ (pp. 112 to 115 and 118 to 121).

12. Sum of (10) and (11), giving the expected daily heat production according to the prediction formulas of Harris and Benedict¹ (p. 227). These formulas are also given in Carpenter⁴ (p. 109). Space (12) may also be used for recording 24-hour calorie production in children according to the standards of Benedict and Talbot,⁶ or in girls, according to Benedict, Hendry and Baker.⁷ The table of values for children are found in Benedict and Talbot⁶ (p. 206), in Carpenter⁴ (p. 109), and incompletely in Sanborn⁵ (p. 239). The table of values for girls from 12 to 17 years of age is found in the original article by Benedict, Hendry and Baker⁷ (p. 12), in Carpenter⁴ (p. 109), in Sanborn⁵ (p. 36) and in an article by Benedict and Hendry⁸ (p. 331). Slightly modified values for girls from 12 to 18 years of age are given recently by Benedict⁹ (p. 137).

13. Daily heat production according to standards of Dreyer.² A tabulation of these values will appear later in this series of notes. Until that time their values must be calculated logarithmically from Dreyer's formulas, which are given in the original article² (p. 290), by Carpenter⁴ (pp. 13, 14 and 122), and by Sanborn⁵ (p. 26). (The coefficient 0.1127 in the formula for females, in the last two sources is given erroneously as 0.1125).

14. Heat production per hour per square meter according to normals for Aub and DuBois.³ These numerical values are recorded in the original paper of Aub and DuBois³ (p. 831), by Sanborn⁵ (p. 25), by Boothby and Sandiford¹⁰ (p. 107), and by Carpenter⁴ (p. 122).

15. Surface area of the patient in square meters, according to the height-weight formula of DuBois and DuBois.¹¹ Values of S may be read from the height-weight chart of DuBois and DuBois¹¹ (p. 865), copied by Boothby and Sandiford¹⁰ (p. 106), Carpenter⁴ (p. 108) and Sanborn⁵ (p. 245). Values are most conveniently read, however, from the tabulation by Sanborn⁵ (pp. 246 and 247).

16. Mils of oxygen, at observed temperature and pressure, consumed by the patient in four minutes. This is the minimal sum of two consecutive two-minute oxygen consumptions recorded in spaces (61) to (68). The reasons for selecting a four-minute volume were given in the first of this series of notes. When the appa-

ratus used is equipped with a simple millimeter scale, it is, of course, necessary to convert the length on the scale to volume by multiplication by the area, πr^2 , of the horizontal section of the bell in square centimeters.

17. The average temperature, in degrees Centigrade, of the oxygen during the period of the selected volume. These temperatures are read on the thermometer protruding into the spirometer bell and are recorded in spaces (73), (74), etc.

18. Observed temperature on the absolute scale. The temperature is expressed finally on the absolute scale in order to avoid the usual factor, $1/(1 + .003665t)$, of temperature correction, in which t is degrees on the Centigrade scale. For slide rule calculation, a more convenient correction factor for temperature is $273/t$, in which t is the temperature on the absolute scale.

19. Barometer reading in millimeters.

20. Tension of aqueous vapor at t . In these laboratories a correction for full saturation with aqueous vapor has consistently been made for the past three years. Values of the tension of aqueous vapor at the various temperatures may be found in practically all collections of physical tables, also in Carpenter⁴ (p. 30). Those who prefer to use 5, 10, 20, 30, 80, or any other per cent. of these values at saturation may substitute such modified values.

21. Pressure under which oxygen exists in spirometer,—difference between (19) and (20).

22. Basal metabolic rate based on the Harris and Benedict¹ standards. This value is calculated by slide rule from the given formula, which, first, corrects the observed, selected, minimal four-minute oxygen consumption in mils (16) to 24-hour consumption in liters at normal temperature, 0°C., and normal pressure, 760 mm.; second, converts this volume into calories by multiplication by 4.825, the calorific value of one liter of oxygen at normal temperature and pressure when the respiratory quotient is assumed to be 0.82; third, gives the positive or negative percentile variation of this value from the expected 24-hour calorie production (H) for an individual of the subject's sex, age, weight, and height. When the Sanborn Handy Model apparatus is used, the coefficient 62.4 of this final formula becomes 67, since the scale of this apparatus is so constructed as to read a volume observed at 20°C. corrected to 0°C. Hence, the usual temperature correction $273/t$ becomes $293/t$.

23. Basal metabolic rate based on Dreyer² standards. The formula is identical with the one for the Harris and Benedict standard except for the substitution of the Dreyer standard. When a scale corrected from 20°C. to 0°C. is used, the coefficient 62.4 becomes 67 for reasons stated in paragraph 22.

24. Basal metabolic rate based on Aub and DuBois³ standards. The formula converts the

four-minute, observed, minimal oxygen consumption in mils to liters at normal temperature and pressure per hour per square meter body surface, converts this value into calories, and, finally, gives the positive or negative percentile variation of this experimental number of calories per hour per square meter from the Aub and DuBois³ normal for the corresponding sex, and age. When a scale corrected from 20°C. to 0°C. is used, the coefficient 2.6 becomes 2.79, for reasons stated in paragraph 22.

25. Provisional diagnosis upon admission of patient to hospital and final diagnosis. These are of value in reviewing a series of determinations.

26. Any items of interest in the determination may be recorded here; such as, psychic condition, improper preparation, excessive movement or temperature of the patient, possibility of leak or other technical point, as probably satisfactory or unsatisfactory nature of the determination.

27. Time of start of test.

28. Two minutes later.

29 to 35. Two minutes later in each column. It is necessary to record only the initial time. If a stop watch is used the initial time is 2, as was shown in the first of this series of notes.

36 to 45. From five to ten readings, at complete expiration, of the indicator on the spirometer bell counterpoise are recorded immediately before the time indicated at (27). Usually it is necessary to start to take these readings from 30 to 20 seconds before the zero minute. Although the ten spaces provided afford considerable latitude, the rapidity of respiration must be considered, and the time chosen so as to make from five to ten readings before the starting time. The five, or less, spaces immediately above the zero, not required for these readings, are not to be used. In apparatus with scale in "cubic centimeters," mils, it is well to read three digits only, for example, 382, meaning 3820 mils. The scales permit accurate readings to only three places.

46 to 50. Five readings of the scale, at complete expiration, immediately after the zero of the test.

51. The average of the five readings just before and the five readings after the zero. Obviously, the average, to four places, of the ten figures, to three places, is their sum.

52. The average reading of the scale, at the end of expiration, recorded and calculated similarly two minutes later.

53 to 59. Similar averages at two-minute intervals. A ten to twelve-minute period is usual.

61. Difference between 51 and 52—the first two-minute oxygen consumption.

62. Difference between 52 and 53—the second two-minute oxygen consumption.

63 to 68. Successive two-minute oxygen consumption similarly obtained.

69, 70, etc. The pulse of patient at two-min-

ute intervals is taken immediately after recording the spirometer readings and the reading of the temperature of the gas in the spirometer bell. Pulse rate does not enter into the calculation of basal metabolic rate but is often useful in differentiating a leak from a true rise in oxygen consumption.

71, 72, etc. Respirations per minute are counted immediately after recording the pulse. This value, also, is not used in the calculation.

73, 74, etc. Temperature, in degrees Centigrade, of the gas in the spirometer bell.

Summary.—A simplified and complete data blank is presented, together with explicit directions for its use. The blank may be used for the clinical determination of basal metabolic rate based upon oxygen consumption, using Harris and Benedict, Dreyer, and Aub and DuBois standards.

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FURTHER EXPERIENCE IN THE USE OF TISSUE JUICES IN TONSILLECTOMY.*

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In the removal of the faucial tonsils there are three chief considerations, aside from the anesthetic, which should ever be borne in mind:

1. The prevention of hemorrhage.
2. The lessening of trauma.
3. The avoidance of infection.

It is my opinion that infection is largely due to hemorrhage and trauma, and these causes can be greatly reduced by a technique which I shall describe later.

The clotting of blood is a very interesting and complex phenomenon, and we should make use in a larger way of this physiological process in our surgical operations. The control of bleed-

ing in tonsil surgery is a bit different from that which usually confronts the general surgeon in that the gland is surrounded by delicate and important structures, and the region also is none too easy of access for the usual surgical measures. In throat surgery there is also the added hazard of inspiration of blood into the lower respiratory tract, with the danger of a complicating pneumonia or lung abscess. These factors and others make it imperative that bleeding be prevented and controlled as accurately as possible.

The development of tonsil surgery has made wonderful strides within the memory of most of us. In the beginning the surgeon was quite satisfied with the removal of the presenting portion of the hypertrophied tonsil, the submerged or inconspicuous looking gland not being disturbed. This was in the days of the tonsil-lotome. In the next step of development of tonsil surgery we find the operator quite satisfied, and sometimes boastful, when he had succeeded in dissecting the tonsil in its entirety though the fossa show evidence of marked trauma and shreds of muscle tissue be attached to the gland. This marked the era of the early dissecting operation. Thanks to the urging of the late Hudson MaKuen¹, Kenyon² and others, the technique of tonsil surgery has been so perfected that we now have a feeling of disappointment—if not embarrassment—when injury has been done to adjacent structures. This statement has no reference to the technique of tonsil removal, whether by dissection or other methods.

It has occurred to me that at the present time more heed might well be paid to the two important factors of hemorrhage and trauma. Possibly the introduction of the suction apparatus has been in a measure responsible for this seeming indifference to the loss of blood in that it can by this measure be so readily removed from the field of operation. Although not wishing to enter into a discussion as to the advisability of the use of the suction apparatus, for it has been too generally accepted by our profession, yet I am of the opinion that its use tends to encourage bleeding rather than to favor clotting in the open vessels. While it is not my intention to discuss with you all the theories which have been offered to explain the clotting of blood, yet it seems desirable to recall with you some of the principles concerned in this important physiological process. In the first place, as you well know, blood does not clot in the body during life, though the important elements thrombogen (prothrombin), calcium, and fibrinogen are present. According to Morawitz³ the element thrombokinase is lacking in the circulating blood, though it is present in shed blood, being derived from the disintegrating white cells, particularly the blood platelets, and the injured tissue cells. It is thought that the

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thrombokinase of shed blood acting on the prothrombin in the presence of calcium, converts it into thrombin, and this thrombin acting on fibrinogen forms fibrin. Howell⁴ terms this product, which accelerates the clotting of blood and which is found in the injured tissues and in the broken-down white cells, "thromboplastic substance." It has been noted that blood obtained without passing through injured tissue clots much more slowly than when brought into contact with wounded tissue or the tissue juices (tissue fibrinogen) of the body. The clotting of blood which concerns the surgeon is the normal clotting which takes place in accidental injuries to tissue or in surgical wounds. Brain surgeons, Cushing, Dowman⁵ and others, have long made use of the application of muscle tissue to facilitate clotting in troublesome bleeding, and we have already at hand on removal of the tonsils these coagulant elements of the tissue juices at the very place where most needed. Tissues of the body vary greatly in the activity of their clotting elements, and it has been proven that the lungs, brain, kidney and skin contains this tissue fibrinogen in the greatest abundance. Recently Mills⁶ has succeeded in making an extract of lung tissue which is more powerful than that obtained from the brain and other tissues of the body. It possesses such strong clotting qualities that 1 c.c. injected into the vein of a rabbit caused death

This should rate the clotting activity of the tonsillar tissue as about equal to that of the kidney, testes and brain. I think you will find that it is the injured tonsil tissue itself that aids in the control of hemorrhage." The result of the test appears below.

I am indebted to Drs. Anderson and Leonard of Squibb's Biological Laboratory for carefully extracting the clotting elements of the tissues of a pair of tonsils despatched to them several months ago. The tonsils from a child of six were removed with almost no bleeding. The clotting time of his blood was 8 minutes. The capsule was removed from the tonsils as carefully as possible and an extract made from this tissue as well as that of the gland itself. Tests were then made with sheep plasma using varying dilutions of the tissue extracts to determine the clotting time of the glandular portion, and the capsular portion, compared with thromboplastin (Squibb). The normal clotting time of the sheep plasma, without the addition of any coagulant, was 18 minutes and 5 seconds. All dilutions were made by adding physiological salt solution to the tissue juice extract. All tests were made in duplicate. The test was made after adding two drops of the varying dilutions of the extract to the sheep plasma. The result of the test is given on the next page.

It may be of interest to quote from Mills⁷, who has done a large amount of work on the clotting

ACTIVITY OF CLOTTING ELEMENTS OF THE TONSILS (Mills).

1 c.c.	citrated horse blood	+ 0.35 c.c. 1% CaCl_2	clotted in 13 minutes.
1 c.c.	"	+ 1.0 c.c. tonsil extract	+ 0.35 c.c. 1% CaCl_2 clotted in 55 sec.
1 c.c.	"	+ 0.5 c.c. "	+ 0.35 c.c. " in 1 min. 10 sec.
1 c.c.	"	+ 0.3 c.c. "	+ 0.35 c.c. " in 1 min. 20 sec.
1 c.c.	"	+ 0.2 c.c. "	+ 0.35 c.c. " in 1 min. 35 sec.
1 c.c.	"	+ 0.1 c.c. "	+ 0.35 c.c. " in 2 min. 0 sec.

from general thrombosis in less than a minute. This same extract when mixed with blood plasma in proper proportions caused clotting within ten seconds. Tissue extracts which are on the market under various names as Thromboplastin (Squibb), Haemolitic Serum (Mulford), Hengulin (Lilly) are obtained from calves' brains, while Coagulin Ciba (Fonio) and Coagulose (Parke Davis & Co.) are prepared from blood platelets. Although my experience with these preparations has been too limited to express an opinion as to their value, yet from a theoretical standpoint they might be at times useful.

Due to the kindness of Dr. C. A. Mills of the Biochemical Laboratory of the University of Cincinnati I am able to give the activity of the clotting elements of the tonsils. The tonsils were taken from an adult, though Mills says children's tonsil tissue possesses practically the same degree of activity as does that of an adult. He says further in his report, "the yield (extract) was 0.9% of the weight of fresh tissue, or about one-third the yield from lung tissue, which is the most active tissue in the body in this respect.

of blood. He says: "The circulating blood contains very little tissue fibrinogen so that it is able to remain fluid and still contain soluble calcium salts and blood fibrinogen. However, in event of tissue injury with rupture of blood vessels, the escaping blood is immediately mixed with tissue juices and clotting induced. It has been found that those tissues in which hemorrhage is most dangerous possess the richest store of tissue fibrinogen, so that bleeding there is most quickly controlled. Such tissues are the brain, lungs, kidney and the endothelium of the blood vessels. Not only does the escaping blood clot quicker when mixed with the juices from the tissues, but the amount of fibrin formed is much greater and the texture more firm. The additional strength thus imparted to the fibrin plug filling in the opening renders subsequent rupture less likely."

In my original paper published in 1916⁸ (*Laryngoscope*) I made use of the tonsil as a means of preventing hemorrhage and lessening trauma only during the first stage of the dissection of the gland. However, during the last sev-

eral years I have extended the use of this technique till now I rely largely on the application of the tonsil to the fossa for the control of bleeding during the entire process of dissection and after removal. In my experience it accomplishes this purpose far better than a gauze sponge in that it supplies the clotting elements of the tonsils and the wounded tissues to the mouths of the open vessels, thus forming a firm and abundant clot. In the technique of holding the tonsil firmly in the fossa before bleeding takes place the tissue juices are applied in the most effective way for the reason that these coagulent elements are not diluted, nor are they washed away by the first rush of blood. Leaving out of consideration for the moment the action of the tissue juices in causing clotting, there is no sponge which would give such accurate pressure with so little trauma as the tonsil itself. Furthermore, surgical sponges by their absorptive action on the tissue juices tend rather to lessen the clotting tendency of the blood, though they are effective as a means of applying pressure. In this connection it may be of interest to quote from a personal communication of Prof. Howell of the Johns Hopkins University. He says: "Your procedure can certainly be depended upon *a priori* grounds as introducing a favorable condition for clotting. The point is the clotting of the blood is much favored by tissue juice, the so-

smare. The time required for this step is about one minute for each tonsil. The last and most important step in the operation after its complete severance is the holding of the tonsil firmly and accurately in its fossa for a period of about two minutes. This may be done by the assistant, and it should be borne in mind that the gland is at no time taken from its position in the fossa till about two minutes have elapsed to insure the closure of the mouths of the vessels with a firm clot. As a rule, though of course there are exceptions, it is not necessary on removal of the tonsil to sponge the fossa to control any immediate post-operative bleeding, and rarely is it necessary to catch a bleeding vessel. The avoidance of sponging and the use of forceps in the wound will greatly lessen trauma. Although the incidence of shock in varying degrees of intensity is still not perfectly understood, yet it is a well-recognized fact that hemorrhage and trauma are important factors in its production. It is a well-known fact that young children, and those of all ages whose health is below par, withstand the loss of blood badly. The fact that so many of our patients requiring operation come within this class makes it desirable to emphasize the importance of conserving all blood possible.

The objection which has been offered to this method of the control of bleeding is the sup-

ACTIVITY OF CLOTTING ELEMENTS OF THE TONSILS (Anderson and Leonard).

C—Capsular portion, G—Glandular portion, S—Thromboplasticin Local Squibb.	C undiluted	1 min. 35 sec.	G undiluted	0 min. 53 sec.	S undiluted	0 min. 50 sec.
C 1 in 5 dil.	1 "	38 "	G 1 in 5 dil.	0 "	58 "	0 "
C 1 in 10 "	1 "	10 "	G 1 in 10 "	1 "	10 "	S 1 in 5 dil.
C 1 in 100 "	2 "	20 "	G 1 in 100 "	1 "	30 "	0 "
C 1 in 500 "	4 "	15 "	G 1 in 500 "	1 "	40 "	47 "
C 1 in 1000 "	5 "	35 "	S 1 in 500 "	3 "	5 "	S 1 in 100 "
C 1 in 10000 "	7 "	35 "	G 1 in 10000 "	3 "	40 "	1 "
	S "	0 "		3 "	5 "	15 "
	13 "	5 "	G 1 in 1000 "	6 "	20 "	S 1 in 1000 "
	13 "	25 "		6 "	30 "	6 "
	19 "	10 "	G 1 in 5000 "	11 "	5 "	10 "
	19 "	25 "		11 "	35 "	7 "
	16 "	20 "	G 1 in 10000 "	17 "	5 "	0 "
	27 "	2 "		18 "	16 "	12 "
						1 "
						10 "
						40 "
						18 "
						40 "

called thromboplastic action of the tissues. In dissecting off the tonsils there is much wounding of the tissues, but by your procedure of laying back the tonsil you add something to this exposure of the oozing blood to the tissue juice of the lacerated tissue and thus help the process of clotting." The technique in brief is as follows: The tonsil is seized with forceps and the upper third is carefully dissected, using by preference sharp or semi-sharp instruments. Should vessels of any importance be encountered during this stage of the operation the tonsil is at once pushed back into the fossa and held firmly till bleeding is controlled. When the upper part of the tonsil has been sufficiently dissected the wire loop is slipped over the tonsil and its re-

moval accomplished by slow action of the wire posed danger of introducing the infection present in the tonsils into an open wound. This danger appears to me very remote for the reason that the severed side of the tonsil is not the infected area of the gland. There is quite as much danger of carrying infection with a surgical sponge for the reason that the mouth is a natural habitat of various infectious organisms.

In conclusion I wish to emphasize the following points:

1. The application of the tonsil itself to the open vessels of the fossa controls bleeding more effectually than the usual method of sponging.

2. This technique conserves the patient's blood and at the same time lessens trauma.

3. In the reduction of hemorrhage and trauma the danger of infection becomes less and convalescence is hastened.

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SUBCUTANEOUS EMPHYSEMA COMPLICATING TONSILLECTOMY.

BY LYMAN RICHARDS, M.D., BOSTON.

In the Transactions of the American Laryngological, Rhinological and Otological Society for 1922 appears an account by Rosenheim of a case of subcutaneous emphysema following tonsillectomy. Since only one similar case, that of Parrish, has been reported in the literature, the following two cases of this type of emphysema occurring within the last six months at the Massachusetts General Hospital Throat Clinic merit recording.

Rosenheim's patient was a young epileptic of 21 whose tonsils were removed under ether anesthesia by the method of sharp dissection. Soon after the operation, during which the ether was poorly taken, the patient's condition became alarming, there was marked respiratory embarrassment, with frothing at the mouth, a temperature of 103, and a pulse of 150. The next morning there could be palpated over each side of the neck as far down as the clavicles an area of typical subcutaneous emphysema, which on the following day had increased in size, covering the front of the chest and extending into the axillae. The general condition, however, improved and the emphysema gradually subsided, finally disappearing under hydro- and electro-therapy.

Such a case at once brings up the question as to the etiology of this accumulation of air within the subcutaneous tissues, assuming that it is not the result of any bacterial fermentation (B. Welchii, for example), or of a decomposition of extravasated blood. Following a tonsillectomy under ether anesthesia there can be only two points of entrance of the air into the tissues.

1. Subpleural. This route is followed when there is a rupture of a subpleural alveolus, occasioned by undue straining or coughing, with the result that air from the lung forces its way with each respiration under the visceral pleura over the surface of the lung till it reaches the hilus, whence it is reflected up along the great vessels into the mediastinum and thence along fascial planes into the subcutaneous tissues of the neck. In all such cases one would expect to

find the emphysema first and primarily in the tissues of the neck, since they are the most direct in line with the course which the air follows.

2. Through a perforation or wound in the mucous membrane covering the pharyngeal wall, deep enough to penetrate the underlying muscle. In this way there is afforded a direct point of entrance by which the air could reach the post-pharyngeal tissues, whence it would extend on to the more superficial spaces. The method by which air is forced or aspirated through such a break in the pharyngeal wall is not so clear as that whereby it traverses the subpleural route, but it seems probable that the severed edges of the muscle act somewhat as a valve, sucking in and forcing backward with each respiration small amounts of air contained in the throat. The more complete relaxation of the tissues following anesthesia would facilitate such a mode of entrance.

Where, as in Rosenheim's case, no trauma to the pharyngeal muscle can be demonstrated and where the postoperative result, so far as can be determined by inspection, was equally as good as in hundreds of uncomplicated cases, it is difficult to determine which route the air took in entering the superficial tissues of the neck. The fact that the anesthetic was not well taken and that the patient had a slight epileptic attack while being etherized makes the subpleural route seem the more likely, and yet the rarity of this complication in other operations, regardless of stormy anesthesia, is obvious. A previously existing and unsuspected pulmonary emphysema, predisposing to an alveolar rupture, must, of course, be considered. The point of entrance of the air was equally uncertain in one of the two cases here reported, less so in the other. Both were patients in the Throat Clinic of the Massachusetts General Hospital.

CASE 1. The patient, a young girl of 12, after a preliminary and negative examination of the heart and lungs, had her tonsils removed under ether anesthesia in the upright position, the method employed being dissection with a knife and wire snare. There was no bleeding, no signs of trauma to the pharyngeal muscle of either side. The recovery from the anesthetic was entirely without the respiratory embarrassment shown by Rosenheim's patient. The next morning, however, both sides of the neck were swollen and the typical egg-shell crackling could be felt on palpation as far down on the chest as the second rib. There were no signs of pneumothorax, and examination of the throat revealed nothing abnormal. The girl suffered absolutely no discomfort, but was kept under observation for two days, during which time the emphysema had partially disappeared. The patient was then allowed to go home, but was seen again in two days, by which time no more air could be detected in the subcutaneous tissues. A return

visit to the throat clinic a week later showed both tonsillar fossae to be healing normally.

In this case the situation of the emphysematous area was much the same as in Rosenheim's, that is, limited to the neck and chest, and present equally on both sides, suggesting that it had made its way up through the mediastinal tissues. There was no evidence of trauma to the pharynx, and the most reasonable supposition is that it originated in the rupture of a subpleural alveolus in spite of the absence of any respiratory symptoms.

CASE 2. This patient was a boy of 10, whose tonsils were removed by the same routine method as that used in Case 1. No symptoms of any sort appeared until the next morning, when the entire left cheek was found to be the site of a very marked subcutaneous emphysema definitely localized between the ramus of the jaw and the zygoma. There were no signs of involvement of the neck or chest. The patient insisted on going home and was lost sight of thereafter.

In this instance it seems quite clear that the route taken by the air was through some unilateral break in the pharyngeal wall, in spite of the absence of any evident trauma to this structure, either at the time of operation or afterwards; no other hypothesis could explain the definite localization of the air to the area of the cheek. As in Case 1, this was presumably soon absorbed without further symptoms.

These two cases exemplify an apparently innocuous but unusual complication of a very common operation, the exact pathological nature of which still leaves room for speculation.

THE RELATION OF THE SPECIALIST TO
THE GENERAL PRACTITIONER.*

BY WALTER G. PHIPPEN, M.D., F.A.C.S., SALEM,
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Visiting Surgeon, Salem Hospital.

The subject that you have set down for discussion this evening seems to me a very opportune one. There seems to be a somewhat increasing discord between the general practitioner and the specialist, some of it no doubt due to misunderstanding on the part of the general practitioner, some to carelessness on the part of the specialist, and much to the increasing knowledge of a whimsical populace.

A good frank discussion will, I am sure, clear the air and I shall only try to lead the way with a few general observations.

If you look back over the history of medicine you will be struck by its continuous progress, continuous change. It has seldom stood still

for any length of time. Before the days of scientific medicine, the changes were largely from one theory to another, and except in the addition of anatomical data, there was no large accumulation of medical knowledge. Following Pasteur's work and its application to surgery by Lister, the sum total of medical knowledge began to grow tremendously so that men soon found themselves devoting their time to some particular branch. For instance, diseases of the eye and ear early required extraordinary attention and the entire time of those undertaking their care. The development of the microscope and oil immersion lens led to the study of the tissues, and the men devoting themselves to this laboratory branch discovered the staining properties of various dyes, and so grew pathology. In like manner Koch discovered the tubercle bacillus and his followers developed bacteriology.

And so we might go on, proving that by assiduous devotion to some particular field of medicine, that field has been expanded and the sum total of medical knowledge thereby increased. Therefore, we must admit that specialization in medicine has justified itself.

Of late years there has come about a great increase in specialists, a sub-division of specialists one might say, so that whereas we once had an internist, now we have a gastro-enterologist, a cardiologist, a haematologist, a parasitologist, a metabolism, an endocrinologist, etc. So also we have the obstetrician to open wide the portals and the gynecologist to close them carefully up again. One might almost say that between the pediatrician at one end of life and the pathologist at the other, we have a continuous succession of "ists" for each and every organ and their various diseases; not to forget, by the way, the much-maligned but very useful dentist. Let us not forget also the increasing tendency of the State to care for its sick, insurance companies to rehabilitate the injured, and for industry to mend its wounded.

What is there left for the general practitioner? What has he to offer that the others have not? Let us answer the last question first. He has to offer a personal relationship with his patient, which I believe the patient still wants today, and will want in increasing amount in the future. The family practitioner lives among his patients. He is in intimate contact with their daily life. He knows their actions and reactions. He is mindful of their heritage and knows their limitations. It is not entirely with him a question of diagnosing a case but of understanding a human being. The general practitioner is, or should be, a keen student of human nature. All this means much in accomplishing our desire to increase human health and happiness.

I say I believe the vast majority of people

*Read at a meeting of the Middlesex East Medical Society, Nov. 22, 1922.

still desire this personal relationship. Certainly this is true in the country and small cities, and the large practice of the few men doing general work in the large cities make me feel that a mere doctor is welcome even there. Indeed the other day I had a patient say, "Doctor, I've got to go to Boston to live and I don't want to. I don't feel intelligent enough to live there. Why you know, Doctor, if you are sick in Boston you've got to know enough about medicine to diagnose your own case or you won't know which doctor to call on." Exaggeration, no doubt. Nevertheless, you get the lay feeling.

I don't mean to belittle the true and honest specialist—that is not my theme; let me rather exalt the general practitioner. There is room for all, but each one in his place. The general practitioner would be hard pressed at times if he could not call on some learned* specialist to help him out of his difficulties. He should have no delusions that he knows all there is to know about medicine, and he should understand that there is no humiliation in a consultation. Consultations are desirable for two reasons. First: To arrive at a proper diagnosis in doubtful cases. Second: To allay the fears of an apprehensive family. No practitioner will hesitate in the first instance. None should hesitate in the second. Anticipation of the wishes of the family in regard to a consultation will often save much trouble and confusion. Too often patients, dissatisfied or impatient, importuned by zealous friends and relatives, run off to the city and are lost. Or, they may run off to a hospital O. P. D. and perhaps fare no better. The diagnosis may have been correct, the treatment properly given. Foreseeing uneasiness and promptly sending the patient to a good consultant would save much anguish.

Then, too, if the practitioner is to maintain his stronghold against the increasing number of specialists he must not fail to use all the facilities at his command. The thermometer, stethoscope and urinalysis he will not fail to use; let him not overlook the blood pressure, the x-ray and other aids in diagnosis. Remember in this connection that educational propaganda, State, corporate and private, is doing much to teach the layman the significance of these methods; some of it unwisely taught, perhaps, and surely much of it only partly learned. Nevertheless, it is to be reckoned with. The days when medicine could be practised by a game of bluff are past. The cards must be put upon the table and the plays elucidated.

It used to be a fact that a doctor in a community after a shorter or longer time, as the case might be, developed a practice. This practice consisted of a number of families who had confidence in his abilities, considered his word law, and stuck to him until the end of their lives. These families were augmented from time to

time by the establishment of new families, by the coming of new families to town, and but rarely by the dissatisfied patients of other colleagues. The doctor considered them his patients; he almost owned them. Today this has to a considerable extent changed. A general practitioner no longer feels that he has the devoted allegiance of all his people. His practice is continually changing. Patients feeling, rightly or wrongly, that some other man knows more in some particular field, suddenly secede. Now among the men in any one community these changes approximately balance one another, a matter of give and take. It can't be helped and must be gracefully endured, provided there is no breach of ethics. No man should in any way influence patients away from a colleague or accept a case while another doctor is in attendance. But we can't prevent a patient going elsewhere if he so chooses. Indeed one should not wish to keep patients after they have lost confidence in him.

But it is just here that we come at times into unpleasant conflict with the specialist. A doctor who sets himself up to be more proficient in a particular field of medicine or surgery and gives all his time to that branch, is no longer a general practitioner, and the same rules of give and take do not apply in his case. In former years patients were referred to specialists by general practitioners. The specialist reported back to the local man his recommendations which were in turn carried out by him. Today we find patients presenting themselves to the specialist without our knowledge or advice. What should be the attitude of the specialist in this instance? I believe he should act exactly as if the case had been referred to him. He should notify the doctor who last had the patient in charge, and not entirely ignore him, as is, I am sorry to say, so often done.

I believe this to be right, not alone from the point of view of ethics but also for the welfare of the patient. How much can the specialist know of home conditions, of family difficulties and of their relation to the case? In out-patient practice we employ social service workers to go elaborately into this matter. The specialist frequently does not consider it of enough importance to inquire into, and a knowledge of social conditions is fully as important among the upper classes as among the lower. How many operations of choice are urged almost as a necessity, to the vast confusion of the family, where a word with the family physician would have arranged a more acceptable time.

Just a word here as to the specialist's qualifications for his job. Our older consultants all had a good foundation of general practice to start in with. They saw their specialty in its proper relation to the general whole. They analyzed their symptoms in relation to the whole

body and not to one particular part of it. Today men take up a specialty immediately after graduation and miss that close contact with human nature which general practice gives. The result is, their view is narrow.

If the specialist is not to be trained in general medicine, as I think he ought to be, he all the more should seek the help of the family physician. No truer words were ever written than those quoted by Dr. Cushing as the text of his presidential address before the American College of Surgeons:

"No one can be a good physician who has no idea of surgical operations, and a surgeon is nothing if ignorant of medicine."

Now as to the ethical side: Perhaps nothing is so disturbing to one's equanimity as to see a patient and say, for instance, "I can't tell you exactly what the trouble is today but I think the appendix is at the bottom of it. I don't feel like urging you to accept an operation immediately as I think the affair is quieting down and the operation can be done much better during the interval between the attacks"; and then be notified the next day that the patient has gone to a Boston hospital for immediate operation. Doesn't the specialist know that aside from all else the local doctor is interested in knowing what that appendix looks like? Was he mistaken? Was it after all acute? Was an immediate operation necessary? Think what hard feeling a word from the specialist would have saved.

Well do I remember traveling some fifteen miles in ice and snow several days to see a child with a lame leg, to be told the following day that the child had been taken to a Boston orthopedic surgeon. Officially I am none the wiser what the matter was, but I am unofficially informed that no pathology was found.

I might go on reciting incidents of this nature, but I know you all have many yourselves. Many are due to misunderstanding, many to carelessness, and some, I fear, to ignorance of the young, untried, so-called specialist, of the fundamental rules of ethics.

The specialist says, "I can't refuse to take the case if it comes to me." Perhaps not, but he can at least suggest that the patient return to his own doctor, and if he declines (as I maintain he has a perfect right to do) then the specialist should insist that the patient so inform his own doctor, and himself tell the doctor the story. Then there can be no doubt about the ethics.

In conclusion let me say that I believe there is need for both general practitioner and specialist, that each has his proper place and function, but on an equal basis. We all make mistakes and blunders. Let us be charitable in our criticisms. When confronted with such problems,

let's observe the Golden Rule and play the game fifty-fifty.

CARCINOMA OF THE APPENDIX, WITH REPORT OF ONE CASE.

BY R. J. SHAFER, M.D., LOWELL, MASS.,

Pathologist, St. John's Hospital.

CARCINOMA of the appendix is comparatively rare; it forms about 0.39 per cent. of all intestinal cancers. Elting first emphasized the importance of these tumors when he reported 40 cases in 1903. In 1908 McWilliams reported 105 cases of carcinoma of the appendix, and in the same year Harte reported 120 cases.

It occurs chiefly at about thirty years of age. Vassamer reported a case in a child of 5 years. It is slightly more frequent in the female. Fifty-seven per cent. of the 105 cases of McWilliams were females, and 69.4 per cent. of Harte's cases were females.

According to MacCarty and McGrath, 90 per cent. of the tumors were located at the tip of the appendix. The growth, as a rule, has been found to be of small size. It may be readily overlooked unless a microscopic examination is made.

Of the cases reported recurrence has been most rare. Ewing states that about 6 per cent. of these tumors extend beyond the appendix.

It is usually associated with chronic appendicitis. Baldauf claims 1 per cent. of all inflamed appendices will show malignant changes.

Pathologically, the spheroidal cell carcinoma is the most frequent. It is slow in growth, does not tend to metastasize, and shows a lack of recurrence after operation. It is usually located in the mucosa and submucosa.

CASE. Mrs. S., 68 years old. **Family History:** Negative. **Past History:** Usual diseases of childhood. Typhoid fever about 34 years ago. Has had 9 children and two miscarriages. All were normal deliveries, except the eighth, when instruments were used. Monthly periods were regular up to the menopause twenty years ago. Bowels were always regular. Two years ago patient noticed a bloody vaginal discharge, small in quantity and bright red. There was no pain. These hemorrhages would come and go at intervals of one and two days. During the first four months there were two intervals of three weeks each without bleeding. Operation was advised and a pan-hysterectomy was performed by Dr. R. J. McCluskey of Lowell. The uterus was enlarged and fibrous. Both tubes were normal; the ovaries were atrophied. The intestines and omentum were normal. Pathological examination showed a *diffuse myoma* of the uterus with no evidence of malignant dis-

ease. Both tubes were normal and the ovaries atrophied. The patient made an uneventful recovery.

Present Illness: Three days ago patient had considerable pain in the right side of the lower abdomen, which was especially marked on stooping. The pain gradually increased up to the time of admission to the hospital, when it was very severe. The patient was nauseated, and had chills and fever.

Physical Examination: A well-nourished and preserved woman. Hearing slightly impaired. Eyes, negative. Nose and throat, negative. Heart and lungs, negative. The abdomen is greatly distended, tender all over, but marked tenderness on right side over appendix area. There is a palpable mass in the right iliac fossa.

The patient was operated upon by Dr. Mccluskey, who found an appendix which was acutely inflamed and swollen to the size of a small lemon. The mesentery was purplish red in color, and swollen to the thickness of a large finger. The parietal and visceral peritoneum were edematous and dusky red in color. The omentum was adherent to the appendix and also to the old abdominal incision. The appendix was removed, two cigarette drains inserted and the wound closed in the usual manner.

Pathological Report: Specimen consisted of an appendix, 7 cm. in length, and having a definite tumor of the tip which measured 3.8 cm. in diameter. Microscopic examination shows the mucosa and submucosa replaced by a small amount of young connective tissue in which are set alveolar masses of atypical epithelial cells. The alveoli are generally large and in places show attempts at gland formation. The muscular coats show no involvement. Infiltration of the tissues with eosinophiles and lymphocytes is general and marked. There is considerable hemorrhage throughout.

Book Reviews.

Food and the Principles of Dietetics. By ROBERT HUTCHISON, M.D. (Edin.), F.R.C.P. New York: William Wood & Co., 1922. Fifth edition, with plates and diagrams. Pp. 575.

In the preface to the first edition (1900), it is stated by the author that the contents of this book were first addressed to his students in the form of a course of lectures. The present edition is written in the same style, and is of interest as an encyclopedic repository of information concerning the composition of our usual foods and diets, special attention being given to the careful listing of many cereal and other proprietary food products.

Special attention is also given to the subject

of alcohol and its proper utilization in health and disease. In fact, 10 per cent. of the entire text is devoted to this subject.

By contrast, the never subject of vitamines is disposed of in less than two pages of text, the latest work being referred to in a mere footnote or two.

The book is well supplied with references, but except for their historical value, one may be permitted to express a slight regret that with so few exceptions these references cover only the period from 1850 to 1900. The majority date from the last decade of the last century, those of the present decade being distinctly scarce.

There is throughout the book an underlying current of experienced common sense, as, for example, the author's conclusion that the reported successful use in identical diseases, of so many widely divergent systems of diet may perhaps be based upon the single fact that "they all tend to promote a more complete oxidation of the proteins."

The reviewer is, however, forced to conclude that in the present state of our knowledge of dietetics it is possible to find several books which will in less space give to our students here the essentials of that knowledge which they must have for the rational dietary care of their prospective patients.

Exercise in Education and Medicine. By R. TAIT MCKENZIE, M.D., LL.D., Late Major R. A. M. C. Philadelphia: W. B. Saunders, 1923. Third edition. Illustrated. Pp. 579.

McKenzie's treatise upon exercise, first presented in 1909, now for the third time has been revised to include the results of the unusual opportunities and experiences which came to the author during and after the World War.

Especial attention is focused upon the development of exercise as a method of treatment of such conditions as "soldier's heart," upon the corrective and reeducational value of active and passive exercise in the restoration of disturbed function, and upon the proven value of Swedish gymnastics in rapidly "disciplining great masses of slow, awkward men in speed, accuracy, and alertness." McKenzie also emphasizes the value of physical education in the school program for prevention of a continuation of the widespread preventable disability brought out by the draft, and he finds worthy of notice the degree to which "the introduction of gymnastics and educational games to France and Italy by our American instructors has opened the eyes of these countries to the educational value of these agencies," to the extent that it "is likely to leave a permanent impression upon them, while the labors of the Y. M. C. A. in the Philippines, China, and Japan have extended the Olympic idea of competitive sport to the masses of the peoples of the East."

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THE PREVENTION OF ECLAMPSIA.

THE occurrence of eclampsia as a complication of pregnancy has always been one of the great bugbears of obstetric practice and has been accompanied by a very definite mortality. The death rate in different series of cases varies from that of Stroganoff of 6.6 to 25 per cent. or even higher, a sufficiently bad showing, even at the best, to call for careful consideration of the prevention and treatment of the condition. It seems fairly evident that if the toxemia of pregnancy is allowed to progress as far as eclampsia, a mortality of approximately 10 per cent. is to be expected under any system of treatment, and it seems equally true that a higher mortality than 10 per cent. is due either to the fact that patients first received adequate treatment when in *extremis* or that improper methods of treatment are adopted.

We well remember the teaching of twenty-five years ago that eclampsia was due to an acute nephritis, was unpreventable, and that we need expect little improvement in the treatment or in the prevention of the condition. In the light of our present knowledge we are able to say that eclampsia is dependent on pregnancy, since it

occurs under no other circumstances, and that it is due to a toxemia developing during pregnancy, which affects the whole maternal organism, and in many cases results in the death of the child *in utero*. We have, however, no exact knowledge of the source or nature of the poison.

Toxemias of a more or less serious degree occur several times in every 100 cases, but eclampsia is ordinarily stated to occur about once in 500 pregnancies, though the incidence would probably be greater in absolutely untreated cases. Unless convulsions develop or a patient passes into coma without having convulsive seizures, the mortality of the toxemia of pregnancy is practically nil, except in the occasional instance in which premature separation of the placenta occurs in the progress of the toxemia.

We are, therefore, faced with the fact that we know nothing definite about the toxemia of pregnancy except that it is due to an irritating poison, almost corrosive in its action, which is developed in the ovum and probably in the placenta. We cannot predict the course of the disease if left to nature, nor can we check its progress in cases which do not react to treatment by any means except the termination of the pregnancy. The progress in the last twenty-five years, therefore, would seem to be negative except from the standpoint that we have gained some knowledge in regard to what eclampsia is not, rather than that we have gained any definite knowledge of its true nature.

The pathological findings suggest the presence of an irritant, almost a corrosive poison, which produces more or less extensive degeneration of the liver, degeneration of the heart muscle, and acute inflammation of the kidneys of a varying degree, while the other organs show less regular, constant changes. Being entirely ignorant of the nature of the poison or of its exact source, although many theories have been advanced in regard to it, we are not in a position to treat the toxemia directly by the neutralization of the poison. We have no knowledge as to whether the condition depends on the failure of the maternal excretory mechanism or on the lack of neutralization of what may be a normal excretion from the placenta, perhaps by the ductless glands of the mother, or some other maternal mechanism, or whether the poison is due to some abnormality in fetal metabolism. Our ignorance being so dense on these important matters, we are faced with the necessity of treating the condition empirically.

The pathology is known, the symptoms are known, and it is also known that in the majority of the fatal cases the heart becomes dilated, and the patient dies of acute cardiac dilatation with edema of the lungs. In other cases massive cerebral hemorrhage occurs, causing death, while in still another group degenerative changes in the

liver, septic infection, and pneumonia produce the fatal result. We recognize that the two most prominent symptoms of the toxemia are, first and foremost, a marked elevation of the blood pressure, the effect of which on the degenerated heart and cerebral vessel is evident when we analyze the causes of death, and that, further, in most cases symptoms of an acute nephritis of a more or less severe grade develops. The additional rise in blood pressure which occurs during the convulsive seizures is responsible for most of the deaths, causing acute dilatation of the heart or cerebral hemorrhage, but it must never be forgotten that in cases of extensive degeneration of the liver recovery is impossible, and the only hope for some patients lies in an early termination of the pregnancy, whereas, in the majority, if the blood pressure can be controlled and kept below the danger point for the individual, recovery will follow.

Experience has shown that if a patient is allowed to develop eclampsia, or if she has a separation of the placenta, a certain mortality is inevitable, the degree apparently being somewhat dependent on the treatment which the patient receives. In the light of our present knowledge, we cannot expect a lower death rate than approximately 10 per cent., if we allow the toxemia to persist long enough to produce eclampsia, since the damage to the liver in these cases seems to be a constant irreducible factor; but if we can prevent eclampsia by prompt and early treatment, whether by inducing active elimination of the poison or by the induction of labor before eclampsia develops, the mortality is negligible. It would seem, therefore, that in the light of our ignorance as to how to treat the toxemia scientifically, our efforts should be directed toward prevention of the convulsions, and if attempts at thorough elimination of the poison are not promptly successful, the emergency is best met by prompt induction of labor.

While it is probably not true that eclampsia is absolutely preventable on account of the fact that the disease occasionally appears in a fulminating form, the progress of the toxemia is usually so gradual that proper prenatal care and the termination of pregnancy, even at the expense of the baby, in cases which do not yield promptly to eliminative treatment, will prove successful, in the great majority of cases at least, in preventing the onset of the more serious symptoms, and thus will result in the saving of a considerable number of maternal lives. When we take into consideration the fact that a certain number of babies perish *in utero* as a result of the maternal toxemia, we shall probably find that the early induction of labor sacrifices no more babies than are sacrificed by a waiting policy, and results in the saving of many mothers.

It is only within the last few years that prenatal care of the pregnant woman has received

adequate attention, and although it is a fact that it is impossible to provide such close prenatal care or to persuade patients to accept it, as will eliminate the fulminating cases, eclampsia is preventable in the great majority of cases. The experience of two of the larger obstetric clinics in Boston has been such as to make it very evident that if patients are under ordinary prenatal supervision (that is, are seen every two weeks in the last three months of pregnancy or, better, every ten days), and the urine is examined and the blood pressure estimated, and on the first appearance of threatening symptoms are sent into the hospital for intensive treatment, eclampsia can be made an almost obsolete disease.

The experience of the two obstetric clinics referred to is as follows:

At the Robinson Memorial, the obstetric department of the Massachusetts Homeopathic Hospital, the results over a period of five years, 1917-1921 inclusive, were as follows:

Total number of confinements	9579
Number of cases of eclampsia	48
Number of deaths from eclampsia	19
Number of patients who developed eclampsia who were cared for in the prenatal clinics of the hospital	13

Of the 19 patients who died, only two had received prenatal care in the hospital clinics. Nine were cases under the care of private physicians, and the degree of prenatal care was unknown. Eight were emergency cases sent into the hospital for treatment after the development of eclampsia. Of the two patients who died who had been under the charge of the hospital clinic, one patient had been under treatment from March 28 to April 16,—a little more than two weeks,—but what previous care she had had is not stated. She was delivered by Cesarean section after the development of eclampsia, which today is recognized as probably the most fatal method of treatment, and developed a post-operative broncho-pneumonia, which probably contributed to the fatal outcome. The second patient had prenatal care in the hospital clinic from June 25 to June 29, when she developed eclampsia. It is probable that in both instances if the pregnancy had been terminated earlier that recovery might have followed.

At the Boston Lying-In Hospital during the same period of time the figures were as follows:

Total number of confinements	11,180
Number of eclamptic patients	43
Number of deaths from eclampsia	11
Number of patients who developed eclampsia who received prenatal care in hospital clinics	7

Of these seven patients, three were uncooperative and would not attend the clinic regularly,

leaving only 4 patients who developed eclampsia who were under proper prenatal care.

Of the 11 patients who died, one patient had been seen once in a hospital prenatal clinic two months before the development of eclampsia, but refused to return for further treatment. Nine were sent in by private physicians and one as an emergency case from the Massachusetts General Hospital. One of the patients was delivered before entrance on account of the eclampsia. Eight others were admitted to the hospital, having had one or more convulsions, and in two cases the convulsions developed shortly after admission.

One other case should be classed as an eclamptic death. This patient had no hospital prenatal care and entered the hospital in coma and died, having had no convulsive seizures.

These figures, covering a period of five years, seem to prove definitely that if adequate prenatal care is given, eclampsia should be an exceedingly rare disease, almost a preventable one.

During the same period 254 cases of toxemia of pregnancy and nephritic toxemia were treated in the Boston Lying-In Hospital without mortality and without developing convulsions.

It is not the purpose of this editorial to discuss the proper treatment of the patient after eclampsia has developed, but since we can prevent the condition from developing in most cases, the treatment becomes relatively unimportant. It is a fact, however, that when a patient has once developed eclampsia the more active the treatment the higher the mortality. Cesarean section on eclamptic patients, at the present time, gives the highest mortality which we can find, approximately 30 per cent. Violent accouchement forceé follows, with a mortality of 20 per cent. to 25 per cent. The lowest mortality is found in the patients in whom labor develops as a direct result of the eclamptic seizures, and who are then delivered with a minimum of shock and are adequately treated afterwards. Should labor fail to develop and the convulsive seizures continue, induction of labor by means of the Voorhees bag offers the best chance for the patient, aided by venesection and the use of morphia, but every active procedure which is carried out on an eclamptic patient increases the mortality somewhat. The great hope of improvement, in the light of our present ignorance of the causation of the disease, lies in its prevention by early discovery of the toxemia, prompt and thorough elimination of the poison, and if this fails, by the prompt induction of labor.

AN OPPORTUNITY AND A DUTY.

We are informed by Dr. Elliott P. Joslin that doctors may purchase from the Deaconess Hospital, Pilgrim Road, Boston, scales for weighing food. These scales are manufactured by the

John Chatillon Company of New York. Although the scales retail at \$10, the Chatillon Company, by an arrangement with Dr. Joslin, has kindly consented to sell them to doctors at \$5.50 apiece, not more than one being sold to each doctor. They may be secured for patients at a cost of \$7.00 apiece.

These scales are so arranged that the weight of the dish into which food is to be put is offset by simply turning the face of the scale. This is obviously a great advantage for those unfortunate, such as diabetics, who have to subsist upon a strictly regulated diet. Such scales are a fundamental necessity in the scientific management of all diseases in which the articles of food must be weighed. It is to Dr. Joslin's interest in this question that we owe the privilege of securing so satisfactory and so essential an instrument at such a reasonable cost.

REVOCATION OF THE REGISTRATION OF JAMES P. A. NOLAN.

AFTER hearings conducted by the Board of Registration in Medicine the registration of James P. A. Nolan as a physician in this Commonwealth was revoked July 23, 1923. The complaint filed with the Board was based on a statement made by a patient formerly in the Boston City Hospital. In this declaration the patient named Dr. Nolan as the person who had terminated her pregnancy by an illegal operation. Thus far the case seemed to be very much like others which had been dealt with by the Board, and the common facts, together with the usual method of defense, seem to warrant brief reference to the important features of the case so that there may be better understanding of the difficulties encountered and the profession may realize that it has not been uncommon for accused persons to have the advantage of having a principal witness unwilling to testify. The attention of the Board had previously been called to the work done by this Dr. Nolan by another physician of similar name to whom patients applied for relief for pregnancies. A complaint alleging a previous illegal abortion had been heard by the Board. These facts seemed to the Board to warrant the suspicion that this Dr. Nolan was believed by some persons to be an abortionist, and the complaint in the last case seemed to demand action.

The evidence was embodied in the statement made by the patient to the hospital physician in charge who notified the authorities, and an officer had her statement put in writing to which the girl signed her name as a true statement. The case was presented in court, but because the girl, who while in the hospital was a willing witness, refused to testify in court against the alleged perpetrator of the illegal act, the charge was dismissed.

The Police Department, having the girl's statement on file, sought action by the Board. Two hearings were held. At the first hearing the Board was in doubt as to some technical objections. At the second hearing the Board admitted the statement signed by the girl over the objection of counsel for Dr. Nolan. The girl was called as a witness. She had as an adviser a lawyer who sat in close proximity to her and directed her to make answer that she refused to testify, explaining that she feared that she might incriminate herself. Since she was not held on any complaint or charged with any criminal act, it is a question as to her right to refuse to testify to facts. She declined to acknowledge her signed statement under coaching by her attorney. A former Attorney-General had advised the Board that the person on whom a criminal abortion had been performed could not be prosecuted, even as an accessory, so that there may be reasonable doubt as to her rights in refusing to testify. There is also good ground for believing that her attorney exceeded his rights in giving to the witness, while on the stand, information as to the answers which he wanted her to give.

In other cases similar tactics have been employed and in addition witnesses have denied recognition of the doctor who, it was alleged, performed the operation.

At the adjourned meeting of the Board the following motion was submitted:

The Board of Registration in Medicine, bearing in mind the oath taken by its members to maintain and uphold the laws of our Commonwealth, and believing the practice of medicine by James P. A. Nolan, a physician registered by the said Board, to be a menace to the health and morals of the public, hereby moves that the certificate of James P. A. Nolan, granted to him by this Board, July 11, 1905, under certificate No. 7607, be canceled, and his registration revoked; and be it further moved, that the said Nolan return to the Board his certificate of registration as a practitioner of medicine in this Commonwealth.

It was then voted to revoke the license of Dr. Nolan. The objections of counsel were strenuously argued and will probably be the basis of an appeal to the Supreme Court, as provided in the law. The decision of the court will determine whether the action of the Board is according to law and will be of assistance when similar complaints may be filed.

OUR COMMON BEREAVEMENT.

THE Medical Profession unites with all good citizens of this country in mourning the death of our President, Warren G. Harding. Although physicians as a class take only the usual interest, common to intelligent persons, in polit-

ical matters, the death of the leading figure in this nation at a period of life in which a man may be expected to do his best work and exert his greatest influence brings forward the question whether the responsibilities and anxieties of the presidency may not be too great a strain on the ordinary human mechanism. Although our President exhibited patience, self-control and equanimity of mind, no one may be able to tell us the degree of wearing anxiety experienced by one who had to meet the greatest problems of our times.

The suggestion that the details of the life of a president must be rearranged seems to have been supported by the untimely death of Mr. Harding. So that in addition to our interest as citizens, physicians may be concerned in the health problems of public life.

It may be that opportunities exist for advice from our profession.

APPOINTMENT OF DR. NATHANIEL ALLISON.

Dr. Allison has been appointed to the position of chief of the Orthopedic Department of the Massachusetts General Hospital, and will bring to this service the highest type of orthopedic surgery. He has occupied a prominent position in St. Louis for many years and has contributed significant and important literature, both of a clinical and research nature. His standing was recognized in the election to the presidency of the American Orthopedic Association in 1921-22.

During the World War he was Assistant Director of Orthopedic Surgery, after serving with the French at the American Ambulance in Paris. He was co-author of "The Manual of Splints," which served to standardize the splints of the American Army, and while serving in the front line supplied splints to all our troops, thereby mitigating an enormous amount of suffering and preventing deformity to a large degree. He received a Distinguished Service medal, was promoted to full colonel, and was for a time in charge of the Orthopedic Service at the Walter Reed Hospital in Washington. He has been in St. Louis since his discharge from the army. He will be enthusiastically welcomed by the profession in Boston.

Miscellany.

MEDICAL WOMEN'S NATIONAL ASSOCIATION.

THE Ninth Annual Meeting of the Medical Women's National Association was held in San Francisco, June 25 and 26, in conjunction with the American Medical Association meetings. Dr. Grace N. Kimball, President; Dr. Kate Campbell Mead, President-Elect. At the open ses-

sion, Monday evening, Dr. Ray Lyman Wilbur, President-Elect of the American Medical Association, delivered an eloquent and inspiring address on the "Power of the Minority."

At the open session, Tuesday morning, a five-year program was presented by the Executive Committee and Council, and was adopted. This program is under five heads:

1. Continuation of the work of the Committee on Medical Service, American Women's Hospitals; Dr. Esther P. Lovejoy, Chairman, 637 Madison Avenue, New York.

2. Federation of American Women's Organizations with the Medical Women's National Association, under Organization Committee; Gertrude A. Walker, Chairman, Whitefield, N. H.

3. Public Health, coöperating with A. M. A. Council on Health and Public Instruction, Hygiene, and Women's Foundation for Health, etc., Dr. Elizabeth B. Thelberg, Chairman, Vassar College, Poughkeepsie, N. Y.

4. Committee for Medical Opportunities for Women, Dr. Sue Radcliff, Chairman, 21 Morris Street, Yonkers, N. Y. Internships for young graduate-members of the M. W. N. A. in hospitals conducted by the American Woman's Hospitals; in missionary hospitals and in hospitals in U. S. A., as well as opportunities for private practice, service on boards of health, government appointments, etc.

5. Publicity for the Medical Women's National Association through the *Bulletin* and an editorial staff, consisting of the President and Executive Committee, President-Elect, and an editor-in-chief. Dr. Grace N. Kimball, Poughkeepsie, N. Y., was appointed editor-in-chief.

The *Bulletin*, which was published quarterly last year, will be continued as the official organ of the Association and sent to all members of the M. W. N. A.

An amendment to the constitution was passed, providing for group membership. This was in response to proposals for federation made last year by certain societies of medical women.

Under the group membership amendment, organizations of women whose basis of membership conforms to that of the M. W. N. A., *viz.*, membership in the A. M. A., may join the National as group members. The Kansas State Medical Women's Society, New York State Medical Women's Society, Connecticut State Medical Women's Society, and Portland (Ore.) State Medical Women's Club affiliated through their representatives at the San Francisco meeting. The Nebraska, Los Angeles and New England Medical Women's Societies signified their desire to take action regarding affiliation.

The M. W. N. A. had a most interesting exhibit. Booth E of the A. M. A., Scientific and Educational Exhibits, showed the work of the American Women's hospitals in Greece and Ser-

bia. Twenty hospitals and a large number of dispensaries are being run by this committee of the M. W. N. A. in Greece alone, under the directorship of Dr. Mabel Elliott, New York Headquarters, 637 Madison Avenue, New York; Dr. Esther P. Lovejoy, Executive Secretary.

Four periods on the A. M. A. Moving Picture Theater were assigned to the National—a film of work in Greece, Crete and the quarantine work on Maeronessi Islands, shown by Dr. Esther Lovejoy; and slides of hospital and surgical work in Serbia, under Dr. Etta Gray.

Dr. Kate Campbell Mead, of Middletown, Conn., was installed as president. Dr. Katherine C. Manion, of Port Huron, Mich., was chosen President-Elect.

The following list of officers was elected: First Vice-President, Dr. Martha Welpton, San Diego; Second Vice-President, Dr. Marjory J. Potter, San Diego; Third Vice-President, Dr. Florence W. Duckering, Boston, Mass.; Secretary, Dr. Jessie W. Fisher, Middletown, Conn.; Treasurer, Dr. L. Rosa H. Gant, Spartanburg, S. C.

The 1924 Annual Meeting of the Medical Women's National Association will be held in Chicago, Ill.

THE ANNUAL MEETING OF THE NATIONAL TUBERCULOSIS ASSOCIATION.

This meeting was held in Santa Barbara. There was a good attendance and the papers presented by eminent specialists were of great interest. The officers elected for the ensuing year are:

President: Dr. Livingston Farrand, President Cornell University.

Vice-Presidents: Dr. W. Jarvis Barlow, Los Angeles, and Dr. Charles J. Hatfield, Philadelphia.

Honorary Vice-Presidents: Hon. Warren G. Harding and Col. George E. Bushnell.

Secretary: Dr. George M. Kober, Washington, D. C.

Treasurer: Mr. Henry B. Platt, New York.

Executive Committee: Dr. James Alexander Miller, New York; Dr. David R. Lyman, Wallingford, Conn.; Dr. J. W. Pettit, Ottawa, Ill.; Dr. C. C. Browning, Los Angeles; Dr. A. M. Forster, Colorado Springs, and Mr. John A. Kingsbury, New York, Dr. Hoyt E. Dearholt, Milwaukee, Wis.

The National Conference of Tuberculosis Secretaries, which has existed for several years as an auxiliary of the Tuberculosis Association, was reorganized, and its membership limited to executive secretaries of state and local tuberculosis associations and heads of service of the National Tuberculosis Association. An Executive Committee of seven, consisting of three state, three local, and one national representa-

tive, was elected. The committee is comprised of the following: Dr. Robert G. Paterson, Columbus, Ohio; Mrs. Sadie Orr-Dunbar, Portland, Ore.; Mr. A. M. Dewees, Philadelphia, Pa.; Mr. Hugo Brown, Buffalo, N. Y.; Miss Sidney Maguire, Los Angeles, Cal. This committee elected the following officers: Dr. Paterson, President; Miss Meyers, Vice-President, and Mrs. Dunbar, Secretary and Treasurer.

Memphis was selected as the next place of meeting, the meeting to be held during the latter part of April, or early part of May, 1924. Section Chairman will be selected in the near future by the Executive Committee.

WORCESTER DISTRICT MEDICAL SOCIETY.

THE resignation of Dr. Homer Gage as chief surgeon of Memorial Hospital has been accepted and he has been appointed as a member of the consulting staff, according to an announcement recently made. For thirty-five years Dr. Gage has been an active member of the hospital's staff. He recently retired from active practice, and his resignation from the hospital staff has been in the hands of the executive committee for some weeks, but final action was not taken until a few nights ago. Dr. Gage will still retain his interest in the Medical Society and in the BOSTON MEDICAL AND SURGICAL JOURNAL as chairman of the committee from the Society under whose jurisdiction the JOURNAL is published. Dr. Gage's retirement has been forced upon him by his increasing business responsibilities, both private and charitable.

Dr. William McKibben is taking an intensive course in Pediatrics at several of the hospitals in Boston.

Dr. William F. Holzer, formerly a member of the City Hospital eye service, has been appointed oculist-in-charge at Memorial Hospital. Dr. Holzer has resigned from the City Hospital to give all his time to his new duties, and he will be assisted in his work by Dr. William E. Dolan in the dispensary department and by Dr. John W. Cahill in the hospital.

Dr. John J. Donoghue, a physician, 10 Vernon Street, began a sentence of one year in the House of Correction July 5, 1923, following his plea of guilty to two complaints involving fifteen-year-old Loretta Morin, 6 Bradley Street. Dr. Donoghue was sentenced on a complaint which accused him of an assault. A second complaint was filed after District Attorney Emerson W. Baker had stated to Judge Nelson P. Brown that adequate provision had been made by the physician for the support of a child born to the Morin girl.

The following letter has been distributed by the Worcester District Society:

To the Members of the Worcester District Medical Society:

At our last annual meeting in May, your attention was called to the book about to be published, written by Dr. Walter L. Burrage, the Secretary of the State Society. This book is entitled, "A History of the Massachusetts Medical Society."

At that time papers were circulated soliciting subscribers.

Twenty-nine names were secured out of about one hundred present.

It appears that many who were at that meeting did not get a clear idea about this book, and some seem to have thought that it was to be an expensive proposition.

In order that these impressions may be corrected and also to give those members of the Society who were not at the annual meeting the opportunity, I am sending each member this notice, which will also be an appeal for your subscription if you have not already agreed to take a copy.

I have not seen the book and therefore cannot speak from actual knowledge, but I understand that Dr. Burrage has been a long time in collecting data and anecdotes and has shaped them all into a story that not only gives us a history but makes it at once interesting and very readable.

I understand also that it is very finely illustrated with pictures of men, buildings and localities that have figured in the Society's past history.

Dr. Burrage has done all this because of his loyalty and interest in everything pertaining to the Society's welfare.

He seeks no financial gain from the sale of this history, and judging from the price (\$6.00) he will get none, but if there is any profit we hope he will get it all.

As there will be a limited number who would naturally subscribe, it is not to be expected that a publisher would undertake to print and prepare this work for sale without a guarantee against a loss, and we understand that there have been a number of members who have guaranteed the cost of production. With one exception, I do not know who these men are.

That there is one man who is willing to put as much time and thought into this work without hope of remuneration, and others who are willing to stand back of the publishing, it seems to me to call for a most enthusiastic response from the members of the Society, and I am sending out this appeal hoping that many more who have not yet signified their willingness to subscribe may be induced to do so and thereby show their appreciation and desire to support such an effort. It may be of interest to you to know that several of the districts have already subscribed 100 per cent. and over. Please sign and return the enclosed postal as soon as possible.

(Signed) ARTHUR W. MARSH, President.

NOTE.—Those who have seen the copy in advance are impressed with the value of the book for reference, as well as the entertainment which will be derived from its perusal.

NURSE-DIRECTOR AT THE PRENDERGAST PREVENTORIUM.

On August 1 Mrs. Aly G. Heminway assumed the duties of nurse-director at the Prendergast Preventorium for Children of the Boston Tuberculosis Association, in place of Miss Ethel L. Dill, resigned. Born of American par-

ents in Paris, Mrs. Heminway received her education at European institutions, with two years at Trion College, Cornwall. Coming to this country, she was graduated at the State Normal School at New Britain, Conn., with post-graduate courses at Yale University, specializing in psychology and pedagogy. Her experience has included state work in Connecticut, the New England Hospital for Women and Children (Boston), Graee Hospital (New Haven), and similar work as superintendent of nurses in Philadelphia. Coming again to New England, Mrs. Heminway supplemented her previous studies by courses at Boston University and Yale, which led to three years of industrial work. Nearly three years ago she entered the service of the Red Cross, from which she resigned to take up her duties at Prendergast.

MASSACHUSETTS ASSOCIATION OF BOARDS OF HEALTH.

The Nantasket meeting of the Massachusetts Association of Boards of Health, on Thursday, July 26, brought together some fifty of the members. A discussion, in which some twenty different speakers touched briefly on matters with reference to health administration, followed the dinner. The discussion followed the paper of Mr. F. W. Dodson of Framingham, which considered means for the betterment of the Association. This paper had five or six principal topics, which included methods of securing more members, ways in which to make the Association of greater importance in legislation, methods of spreading to members the discussions at the meetings, plans for having the health departments the leaders in health movements in their respective districts, and the possibilities of affording help to the smaller towns. Each topic was briefly outlined by Mr. Dodson, and his paper gave the themes for an hour or more of general discussion.

DEAF MUTES.

ACCORDING to the United States Census in 1920 there were 2517 deaf mutes in Illinois; of these, 1404 were males and 1113 were females. Of the total number reported, 2259 were white native born, and of these 1260 were males and 999 were females; foreign born, 227, of which 129 were males and 98 females. The returns show that there were only 31 colored deaf mutes in the state, and of these 15 were males and 16 females. The total number of deaf mutes reported in the United States for the census year of 1920 were 44,885, or 425 deaf mutes for each 1,000,000 of general population.—*Bulletin Chicago School of Sanitary Instruction.*

BOSTON HEALTH SHOW.

In our next issue will be found a portion of the official announcement of the program of the Boston Health Show, which will give some details showing the scope of the plans now being made.

Every physician and worker in health organizations should plan to devote as much time as possible to this demonstration, and every effort should be made to interest the people at large in the exhibits and exercises so that the principles of health conservation may be generally understood.

RÉSUMÉ OF COMMUNICABLE DISEASES.

JUNE, 1923.

GENERAL PREVALENCE.

Of the more prevalent diseases, chicken-pox and diphtheria showed an increase over May in the number of reported cases. The more common diseases were reported as follows:

	June 1923	May 1923	June 1922
Chicken-pox	699	611	325
Diphtheria	613	594	459
Measles	2,985	4,360	3,198
Scarlet Fever	1,057	1,471	470
Tuberculosis, pulmonary	559	627	547
Typhoid	44	51	40
Whooping cough	708	1,240	359
Mumps	729	1,051	375

RARE DISEASES.

Actinomycosis was reported from Cambridge, 1.

Anterior poliomyelitis was reported from Boston, 1; Lowell, 2; Springfield, 1; total, 4.

Dog-bites requiring anti-rabic treatment was reported from Arlington, 3; Boston, 5; Chelmsford, 1; Chelsea, 3; Lowell, 18; Medford, 2; Melrose, 1; Newton, 1; Quincy, 1; Winthrop, 2; total, 37.

Epidemic Cerebrospinal meningitis was reported from Boston, 3; Lowell, 1; North Adams, 1; total, 5.

Hookworm was reported from Boston, 3.

Malaria was reported from Boston, 1; Walpole, 1; total, 2.

Septic sore throat was reported from Arlington, 1; Bedford, 1; Framingham, 1; Boston, 2; Fall River, 1; Haverhill, 2; Lowell, 1; New Bedford, 1; Peabody, 1; Springfield, 1; Weymouth, 1; Worcester, 1; total, 14.

Tetanus was reported from Arlington, 1; Boston, 2; Chester, 1; Fall River, 1; Holden, 1; North Adams, 1; Waltham, 1; total, 8.

Trachoma was reported from Boston, 3; Lowell, 1; Malden, 1; total, 5.

DISTRIBUTION.

ALL COMMUNICABLE DISEASES.

	June 1923	June 1922	June 1923	June 1922
Randolph			(0)	11
Quincy			(5)	25
Newton			(8)	21
Cambridge			(11)	54
Boston			(133)	271
Peabody			(2)	11
Malden			(8)	18
Lynn			(13)	23
Chelsea			(4)	15
Beverly			(2)	7
Watertown			(1)	18
Medford			(5)	12
Lowell			(13)	33
Arlington			(3)	14
Worcester			(14)	78
Fitchburg			(0)	15
Natick	(0)	10	Westfield	11
Boston	(147)	230	Springfield	29
Salem	(7)	15	Northampton	15
Everett	(5)	10	Holyoke	16
Danvers	(1)	10	Hatfield	8
Watertown	(1)	6	Chicopee	6
Somerville	(10)	16	Pittsfield	12
Medford	(5)	10	North Adams	8
Worcester	(16)	42	Montague	5
Millbury	(0)	18	Greenfield	10
Ware	(0)	7		
Holyoke	(2)	9	Typhoid fever:	
Measles:			Total cases	44
Total cases	2,985	3,198	Case rate per 100,000 population	1.1
Case rate per 100,000 population	75.2	81.2		1.0

Cities and towns noticeably exceeding their median endemic indexes.*

	June 1923	June 1922	Cities and towns noticeably exceeding their median endemic indexes.*	June 1923	June 1922	
Sandwich	(0)	58				
Wellesley	(1)	62				
Stoughton	(1)	48	Whitman	(0)	8	
Rockland	(0)	52	Quincy	(4)	1	
Holbrook	(0)	18	North Attleboro	(0)	4	
Easton	(0)	32	Brookton	(12)	45	
Dedham	(0)	17	Boston	(70)	95	
Brookline	(37)	92	Ashland	(0)	14	
Brookton	(4)	125	Swampscott	(2)	16	
Bridgewater	(1)	14	Lynn	(13)	23	
Brantree	(3)	42	Haverhill	(5)	30	
Boston	(141)	824	Somerville	(10)	22	
Wakefield	(25)	47	North Andover	(0)	16	
Newburyport	(10)	20	Methuen	(1)	12	
Melrose	(12)	49	Andover	(0)	20	
Haverhill	(16)	267	Worcester	(9)	28	
Groveland	(1)	25				
Georgetown	(0)	51	Tuberculosis, pulmonary:			
Everett	(12)	26	Total cases	559	547	
Amesbury	(0)	29	Case rate per 100,000 population	14.1	13.9	
Watertown	(8)	43				
Lowell	(19)	40	Tuberculosis, other forms:			
Lawrence	(42)	99	Total cases	92	112	
Belmont	(3)	121	Case rate per 100,000 population	2.3	2.8	
Worcester	(31)	82				
Westboro	(0)	4	*The Median Endemic Index is obtained by arranging in arithmetical sequence the monthly totals of reported cases for the past 3 years and selecting the middle figure. The numbers in parentheses after the names of the city and town indicate the median endemic index for that city or town; the numbers without parentheses indicate the cases reported during the current month.			
Southbridge	(2)	44				
Leominster	(4)	27				
Gt. Barrington	(2)	22				
Scarlet Fever:						

	June 1923	June 1922	
Total cases	1,057	470	
Case rate per 100,000 population	26.6	11.9	

Cities and towns noticeably exceeding their median endemic indexes.*

	June 1923	June 1922	
Taunton	(4)	19	
Weymouth	(0)	13	

GAS MASKS.

THE Department of the Interior has been conducting investigations at the Pittsburgh Experiment Station of the Bureau of Mines of the various types of gas masks and breathing apparatus as used in industry.

The recommendation is made that two or more men similarly equipped should always be present when a man enters an irrespirable atmosphere in a tank or enclosed space, regardless of the type of apparatus worn. Life lines should be attached to persons entering tanks and similar places, and held, when it is possible to do so, by two or more observers to guard against accident. In mine work, a crew consists of five trained men wearing oxygen breathing apparatus.

The results of this investigation are given in Serial 2489, by S. H. Katz, associate physical organic chemist, and J. J. Bourquin, assistant chief mine safety engineer; which may be obtained from the Department of the Interior, Bureau of Mines, Washington, D. C. Every person interested in this matter should procure the literature put out by the government.

DR. FREDERICK GRANT BANTING.



It is reported that Dr. Banting has been allowed \$7500 a year for the rest of his life by the Canadian Parliament in order to allow him to continue his research work in his laboratory in Toronto. Having established his reputation in connection with insulin, it is hoped that he will make other important contributions to the cure of disease.

There is a very general desire to visualize the personality of a prominent person and the JOURNAL is pleased to present herewith a picture of Dr. Banting.

DIABETIC COLUMN

SMALL DOSES OF INSULIN SUFFICIENT.

I was asked if I still gave one unit of insulin at the first dose. This is the practice usually followed at the New England Deaconess Hospital. If the patient enters the hospital before the noon meal he is given one unit then, two units before supper, three units before breakfast, four units before dinner, and five units before supper on the second day; thereafter five units three times a day, increasing or decreasing the number of units if necessary. The dose first decreased is the noon dose. In general, the patients need eventually rather more before breakfast than before the other meals.

Small doses often suffice. Olive, Case No. 2962, referred by and now under the charge of Dr. Arthur Broughton, showed 9.0 per cent. sugar on January 11, 1923. She left the hospital taking carbohydrate 155 grams, protein 66 grams, and fat 88 grams, with 8 units of insulin daily, but later on a reaction showed that she did not need any insulin, and has remained sugar-free on this diet without it.

Avaress, Case No. 3078, a patient of Dr. Edward Starbird, showed 6.0 per cent. sugar on March 26, 1923. On discharge she was taking carbohydrate 135 grams, protein 55 grams, and fat 96 grams, with 10 units of insulin daily. Even this small amount was unnecessary, and on July 2, 1923, she was sugar-free, blood sugar 0.11 per cent. one hour after breakfast, without insulin, and taking carbohydrate 115, protein 51, and fat 84 grams.

E. P. JOSLIN.

WASTED INSULIN.

A nurse wrote that she was giving her aged mother 27 units of insulin a day, and on account of the expense would be obliged to give it up. The amount of insulin seemed extraordinary for an elderly patient prone to mild diabetes. On inquiry it developed that the patient was receiving carbohydrate 228 grams, protein 121 grams, fat 115 grams. In other words, two-thirds the carbohydrate of a normal individual, 50 per cent. more protein than the average student of the Harvard Medical School. A note has been sent to the nurse to give to her doctor, and the outcome of this unseen patient will be reported later.

E. P. JOSLIN.

CLINICAL DEMONSTRATION AT THE PETER BENT BRIGHAM HOSPITAL.—On Wednesdays, during August, there will be held in the amphitheatre of the Peter Bent Brigham Hospital, from 10 to 11 o'clock, a clinical demonstration of diabetic patients, with particular reference to the use of insulin in treatment. All physicians are cordially invited to attend these demonstrations.

Correspondence.

CITY OF NEWTON.

July 27, 1923.

Mr. Editor:

The enclosed composition was written some time ago by a school boy, age eight years, after attending a tuberculosis exhibit and listening to a talk thereon. I know the writer, who, at the time it was written, was an ordinary boy of average mentality.

It seems to me that it is an illuminating commentary on the results obtained by trying to instruct children in the grades on subjects which are beyond their mentality.

It would be interesting to know what this boy's ideas in regard to tuberculosis will be when he grows up.

We all know that impressions acquired when young leave a lasting mark upon a person's memory, and I know that my own ideas upon certain things are strongly influenced by impressions received as a boy, so that my first thought on these subjects, even now, is that which I received then, and often has to be discarded and the correct idea brought up.

I do not decry the teaching of such subjects in the schools, but suggest that they would be of more value if they were postponed until the pupils were better able to grasp them.

FRANCIS GEORGE CURTIS, M.D.,
Chairman, Newton Board of Health.

A COMPOSITION BY A CHILD AFTER SEEING A TUBERCULOSIS EXHIBIT.

Tuberculosis was started in 1884 by Dr. Trudeau who had it in the Adirondacks.

Although consumption is not inherited and does not belong to this climate it is getting very popular. It is often cured. "For instance" a young boy was operated on for appendicitis, but when he was opened his appendix was found to be full of tubercle. He was quickly sewed up and his father bought him a sweater and a out of door outfit and now he is doing very well.

In Colorado where people have consumption they have to take their furniture out and build a tent to live in out of doors. In one of the pictures of Colorado it showed where a man sat twelve hours with his hands folded. The people of Colorado are very healthy, but Colorado is a very consumptive State. Also Massachusetts is. Twelve good breaths a day will cure consumption. Consumption is a germ disease and three-fourths of all the consumptives are cured. The sleeping bags are very useful to the consumptive people, because they can put their heads along into them or leave their heads out and put the rest of their bodies into them. I saw the germ. It is a big white ball with blue spots on it. I think it would be fine to sleep in one of those bags with the head inside and the lungs outside.

SOME HANDICAPS OF THE GENERAL PRACTITIONER.

Jamaica Plain, Mass., July 26, 1923.

Mr. Editor:

May I take the liberty of discussing some of the handicaps of the general practitioner in and around Boston, and of making a few suggestions that would eliminate some of these handicaps?

In my opinion, the greatest burden the profession has to withstand in Boston is the competition of the various hospitals and dispensaries.

Thousands of dollars are lost daily, to the profession, by the indiscriminate treatment of those who should be made to pay for medical treatment.

I presume most of your readers have read in the public press the pathetic appeal for customers of Mr.

Wing of the Boston Dispensary. Mr. Wing was enthusiastic in praise of his staff, and drew a wonderful word picture of the marvelous diagnoses being made in the Dispensary Diagnostic Clinic. Mr. Wing had pronounced laudatory remarks of the "night venereal clinic." In all, it was a clever medical ad. in the name of Charity. If a physician issued such a statement regarding himself he would be promptly and justly labeled a quack.

The people are fed regularly through the press with articles like that emanating from the Boston Dispensary, so that a number of people think that we have a sort of super-doctor in these various institutions, and indeed some of the physicians attached to these institutions think that they are more than "common clay," notwithstanding the poor results they get compared with those obtained by ordinary physicians, in the homes and in private hospitals.

It is certainly an imposition on the profession to keep the night venereal clinic open at the Boston Dispensary. In fact, in my opinion, it would be to the benefit of the community at large to completely close the Boston Dispensary, or else run it, in the interest of those for whom the Dispensary was intended, namely, the sick poor.

My remarks about the Boston Dispensary hold good in regard to the Out-Patient Department of the Brigham Hospital. This Hospital was built for the sick poor of Suffolk County. As a matter of fact, no one, no matter how wealthy, is refused treatment. Patients go there in high-priced automobiles, usurping the places of those for whom the hospital was established, and in order that no one will escape to the common doctor, their Out-Patient Department is open all day.

Who is responsible for this unfair, unjust competition with the medical profession? Answer: the very exclusive staff of the Peter Bent Brigham Hospital.

The two institutions named are the worst offenders, but most of the others in Boston are tarred with the same feathers.

Another handicap under which the doctors in Boston are laboring is the closed hospital staff.

If I have a patient ill with pneumonia, or any other disease, and if this patient is not able to pay for treatment in a private hospital, why should I not be allowed to send this patient to the City Hospital, and treat the patient myself? Why should not a reputable physician be allowed to treat his own patient in any hospital in Boston?

I think we will all agree that a sick person will do better under the care of a medical attendant whom he knows and in whom he has confidence, than with a strange physician or medical student.

In all hospitals the interest of the patient should be paramount, not the interest of the staff, nor the medical school. Should a patient desire his own physician he should be allowed to have him, and undoubtedly if he did, there would be fewer tragedies; there would be more sensible medication and better diagnoses.

A few men band themselves together and say who will and who will not be associated on the staffs of the various hospitals of the city. Such egotism would be tolerated by no other class of people except physicians. True, the system is old, but that does not make it right.

Our profession has been docile, and has stood one abuse after another. It is time to call a halt, and give every man who is a reputable and qualified physician, equal privileges in the hospitals of Boston. This could be accomplished without a cent more expenditure by the city in respect to the City Hospital. Nor would it add to the cost of running the endowed hospitals.

What a great blessing this would be to the sick people of Boston and surroundings! It is quite pathetic—the average sick person's aversion to going to any of the large hospitals; but if we could assure

them that they would be cared for by their own physician, as we can when the patient is able to go to a private hospital, then indeed, confidence would return.

CHARLES MALONE, M.D.

46 St. John St.



NOTICES.

UNITED STATES CIVIL SERVICE EXAMINATION.

The United States Civil Service Commission announces an open competitive examination for Medical Assistant (Pharmacology).

Receipt of applications will close September 11. The examination is to fill a vacancy in the Bureau of Chemistry, Department of Agriculture, and vacancies in positions requiring similar qualifications at entrance salaries ranging from \$3000 to \$3600 a year.

The duties are to carry on pharmacological and toxicological investigations and research in connection with the standardization and physiological assay of certain drugs, such as digitalis, strophanthus, ergot, pituitary, etc., as required by the United States Pharmacopoeia.

Competitors will not be required to report for examination, but will be rated on their general education and medical training, practical or professional experience and fitness, and publications or thesis to be filed with the application.

Apply to United States Civil Service Commission, Washington, D. C. or the secretary of the board of U. S. civil service examiners at the post office or customhouse in any city.

MEDICAL SOCIETY OF THE MISSOURI VALLEY.

THIRTY-SIXTH ANNUAL MEETING, HOTEL FONTENELLE,
OMAHA, NEB., SEPT. 18 TO 21, 1923.

Physicians are cordially invited to attend the thirty-sixth annual meeting of this association, which is to be held in Omaha, Neb., September 18 to 21, in conjunction with the meeting of the Interstate Society of Radiology and Physiotherapy. This is a new organization, and its sessions will be held at the Fontenelle on Tuesday and Wednesday, while the Missouri Valley sessions will be held on Thursday and Friday. This plan will give the members of both associations a chance to mingle, exchange their views, and to become acquainted. A joint "Get-together" dinner will be held on Wednesday evening, at which distinguished men will speak.

Dr. C. L. Mullins is the President of the Interstate Society, and Dr. Roland G. Breuer, of Lincoln, is the Secretary.

Hotel reservations should be made without delay.

An elaborate exhibit will be held on the mezzanine floor of the Fontenelle Hotel which will be worth while.

Clinics will be held on Tuesday and Thursday mornings.

The program for both meetings is now in the hands of the printer. Apply to

CHARLES WOOD FASSETT,
Secretary.

115 East 31st Street, Kansas City, Mo.

APPOINTMENT OF DR. A. K. STONE.—Dr. Stone has been appointed an *ad interim* member of the committee to work with the Massachusetts Health Council, to take the place of Dr. Enos H. Bigelow.

A BUREAU FOR SUBSTITUTE DOCTORS.

Dr. W. M. Stevenson of North Easton, Mass., has suggested to the Secretary of the Society that it would be an accommodation for practitioners who need a vacation and physicians who may want temporary work if a bureau could be established for the purpose of providing substitutes as occasion may arise.

The JOURNAL is at the disposal of members of the Society and if there should be any considerable need of a bureau of this character it could be provided. The common custom seems to be that men on vacations arrange for substitutes among their associates. If none are available a small advertisement which would cost about 75 cents might be all that is required.

WEEK'S DEATH RATE IN BOSTON.—During the week ending July 28, the number of deaths reported was 167, against 152 last year, with a rate of 11.30. There were 20 deaths under one year of age, against 23 last year. The number of cases of principal reportable diseases were: Diphtheria, 39; scarlet fever, 30; measles, 36; whooping cough, 5; typhoid fever, 3; tuberculosis, 37. Included in the above, were the following cases of non-residents: Scarlet fever, 6; typhoid fever, 2; tuberculosis, 6. Total deaths from these diseases were: Diphtheria, 2; scarlet fever, 1; measles, 2; tuberculosis, 10. Included in the above was the following case of a non-resident: Tuberculosis, 1.

CASES REPORTED TO MASSACHUSETTS DEPARTMENT OF PUBLIC HEALTH.

WEEK ENDING JULY 28, 1923.

Disease	No. of Cases	Disease	No. of Cases
Anterior poliomyelitis	3	Pellagra	2
Chicken-pox	52	Pneumonia, lobar	18
Diphtheria	111	Scarlet fever	79
Dog-bite requiring anti-rabic treatment	20	Septic sore throat	3
Encephalitis, lethargica	4	Suppurative conjunctivitis	11
Epidemic cerebrospinal meningitis	27	Syphilis	1
German measles	2	Tetanus	1
Gonorrhoea	100	Trachoma	2
Influenza	1	Tuberculosis, pulmonary	106
Measles	114	Tuberculosis, other	15
Mumps	59	Forms	15
Ophthalmia neonatorum	10	Typhoid	16

SOCIETY MEETINGS.

DISTRICT SOCIETIES.

September, 1923.—Meeting of Franklin and Hampshire District Medical Societies at South Deerfield.

Essex North—Combined Meeting with Middlesex East and Essex South in October. Semi-annual Meeting at Haverhill, January 2, 1924. Annual Meeting at Lawrence, May 7, 1924.

STATE, INTERSTATE AND NATIONAL SOCIETIES.

September 11-12, 1923.—Celebration of the twenty-fifth anniversary of the Rutland State Sanatorium; sessions first day at Worcester; second day at Rutland State Sanatorium.

October, 1923.—Boston Health Show will be held in Boston October 6-13, inclusive.

October, 1923.—Meeting of the American Health Association will be held in Boston, October 8-13, inclusive.

October 18-19, 1923.—Annual Meeting of New England Surgical Society in Boston.

For list of Officers of the Massachusetts Medical Society, see page viii of the Advertising Section.